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3 carved ornaments
Heart jewelry box
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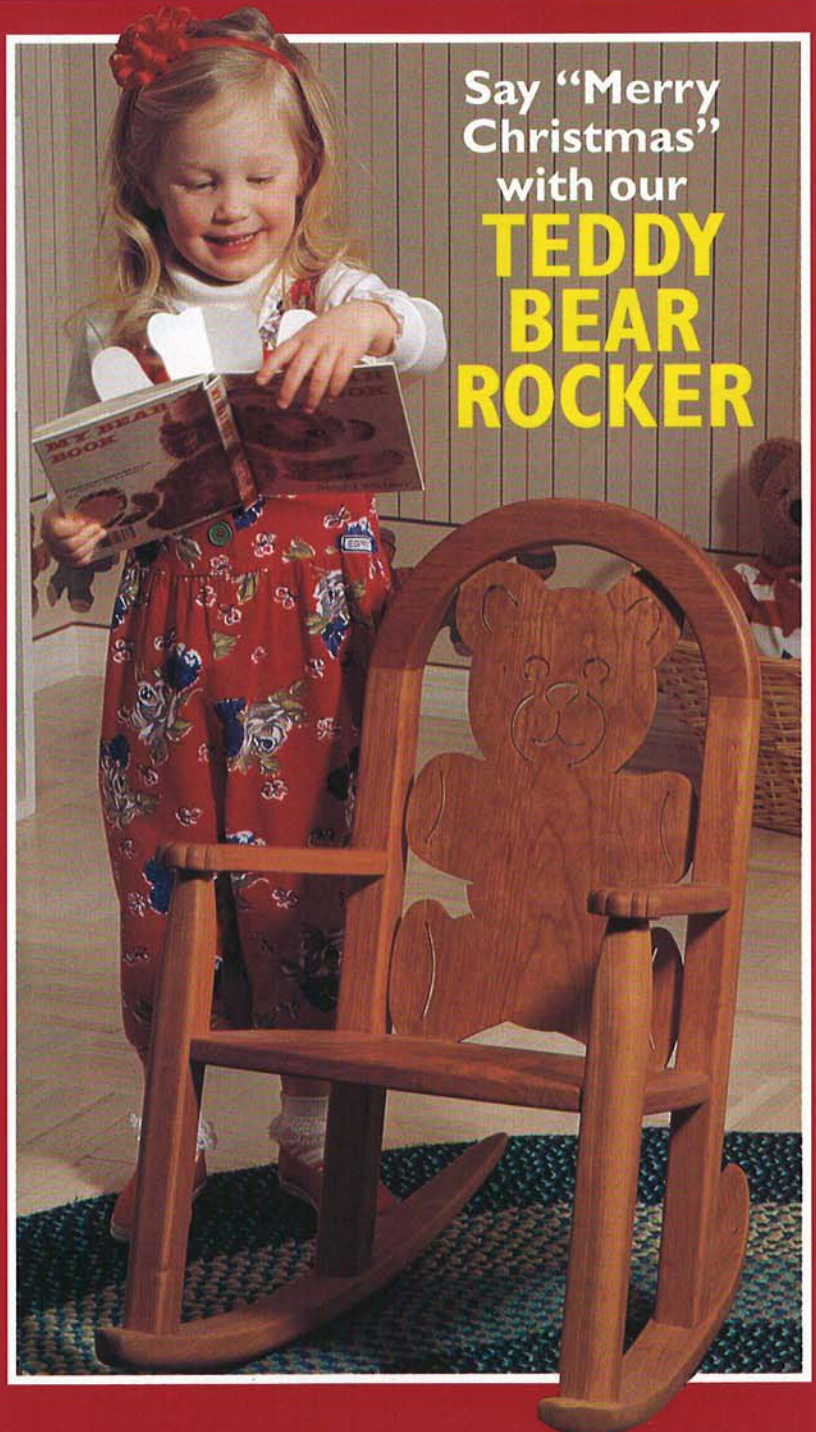

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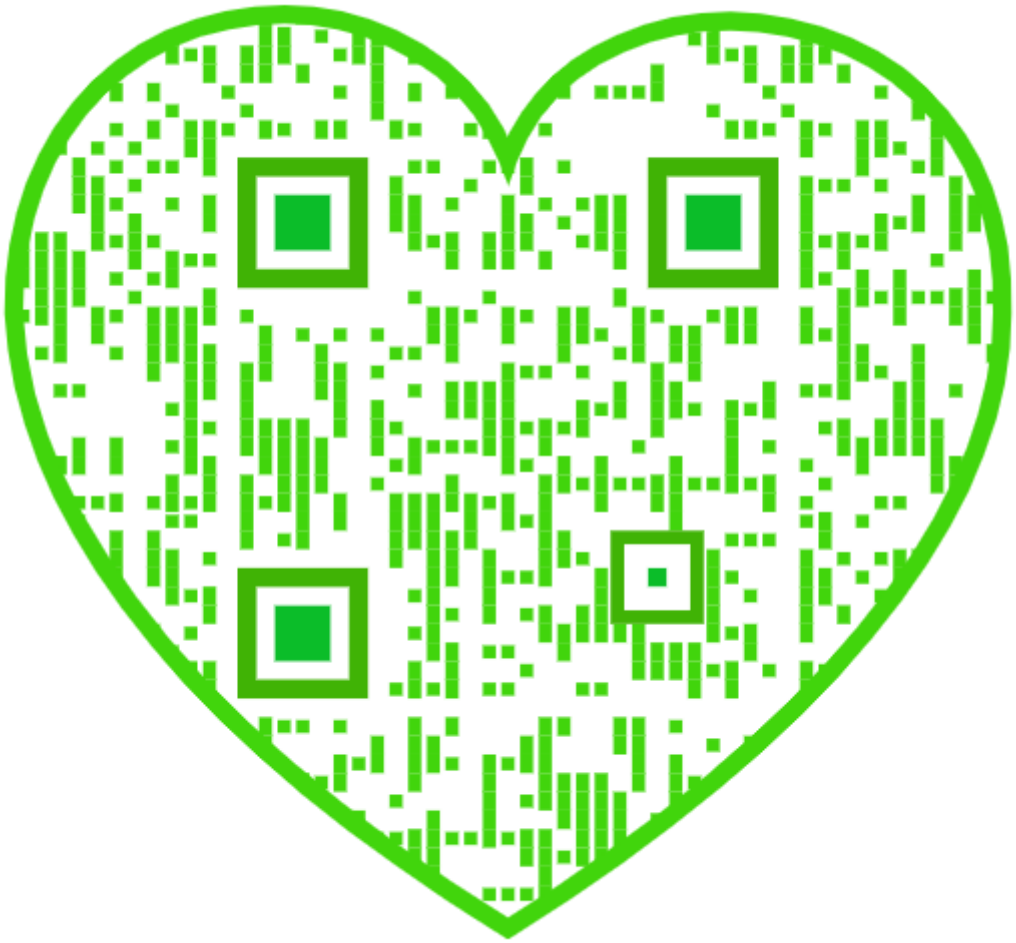

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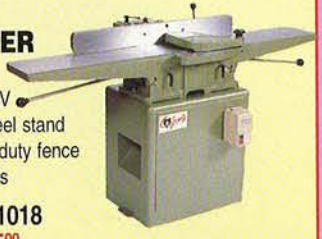

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THE EDITOR'S ANGLE

A BRAND-NEW EXPERIENCE
FOR THE GANG AT *WOOD*® MAGAZINE

Several of the *WOOD* magazine staff, Clayton and Greg Wood (the owners of the timberland), and Wood-Mizer employees Jim Mann and Burl Tichenor relax a spell on the day's log harvest that soon will run through the sawmill.

One day last winter the folks from Wood-Mizer came calling on the *WOOD* staff to talk with us about the virtues of their portable bandsaw mills. And though they didn't realize it at the time, their presentation did more than just familiarize us with their product. It got several of us fever-pitch excited about the idea of taking to the woods and milling our very own boards from just-felled trees. We were so excited, in fact, that we could hardly wait to fit our hard hats on and fire up the chainsaws.

None of us had ever used a portable sawmill before. So we were mightily relieved when Wood-Mizer not only agreed to loan us one of their machines to use, but also offered to send a couple of their employees to Des Moines to show us how to operate the equipment safely. We were in for an education.

Photograph: Wm. Hopkins

On the appointed day last March, we met up with Jim Mann and Burl Tichenor, Wood-Mizer employees who had hauled the sawmill several hundred miles from Indiana. What followed can only be described as one of the most enjoyable and informative days the staff and I have ever experienced. But boy, were we ever pooped out that evening! It was a good tired, though, if you know what I mean.

Fortunately, we thought ahead and had photographer Bill Hopkins on hand to record our experience. So if you want to know more about our woodland adventure, or harvesting your own boards, turn to *page 56* and read Pete Stephano's article, "The *WOOD* Gang Goes Logging." I guarantee you'll enjoy it.

Happy holidays, everyone!

Larry Clayton

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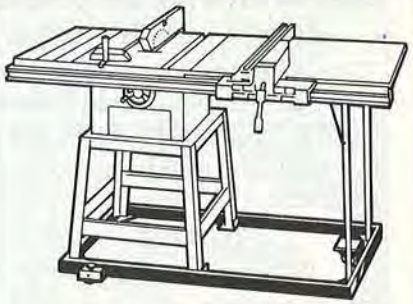

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DECEMBER 1993 ISSUE NO. 66

CRAFTSMAN CLOSEUP

Bandsaw boxes to behold 25

Holed up in his workshop in the mountain city of Boulder, Colorado, forty-one-year-old Jerry Patrasso creates expertly crafted bandsawn boxes. See shinning examples of Jerry's work inside and discover the secrets to his success.

TOOL BUYMANSHIP

Woodworking's sure shots 30

Can a power nailer or stapler serve a need in your workshop? Absolutely! Check out the 18 affordable models rated here.

CHRISTMAS GIFT SECTION

The one and only teddy bear chair 36

Please a child this Christmas with our charming heirloom rocker. Made from cherry, it features a cutout teddy bear backrest and bear-paw armrests. Sorry, storybooks are not included.

CARVING

Terrific tree trimmings 42

Try your hand (and your bench knife) on these yuletide ornaments: a carousel horse, Santa riding a balloon, and gnome Santa.

One sweetheart of a jewelry box 46

Build the perfect gift for a friend or loved one—our multilevel bandsawn box. Note how each tray rotates out for easy access for rings, necklaces, and other fine jewelry.

Country-time plate rack 49

Accent your kitchen or dining room with a homespun storage unit that brims with backwoods good looks. Our two-shelfer features an apple cutout in the top rail and knotty-pine plank paneling for the project's back.

This issue's cover wood grain :Satinwood

TURNING

Ring around the wristwatch 52
Purchase one of the watches in our Buying Guide, and then turn an attractive bezel for it from our selection. What a great gift idea!

DEVELOP YOUR SHOP SKILLS

How to deal with glue squeeze-out 55
Put our proven method to work and avoid letting excess glue in project joints stand in the way of a quality staining and finishing job.

The *WOOD* gang goes loggin..... 56
Come join us as we spend a day felling ash, cherry, and walnut trees and slicing the resulting logs into valuable lumber using a portable bandsaw mill. Timber owners, this is a must-read.

CRAFT SHOP

Choo-choo to go 62
Kids will love you to pieces when you give them this clever puzzle. Its wheeled car parts hook together making a complete train.

Time of the dinosaurs 64
Scrollsawers, you'll enjoy cutting out this prehistoric clock.

SHOP-TESTED TECHNIQUES

Rick's tricks for scrollsawing success..... 66
Learn about blades, cutting techniques, and other related subjects from one of the country's most experienced scrollsawers.

Gregory the Grenadier..... 72
Add to the holiday spirit by crafting and painting this superb nutcracker figure designed by Virginian Glenn Crider.

SHORT-SUBJECT FEATURES

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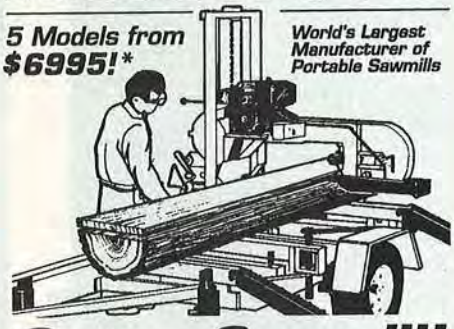

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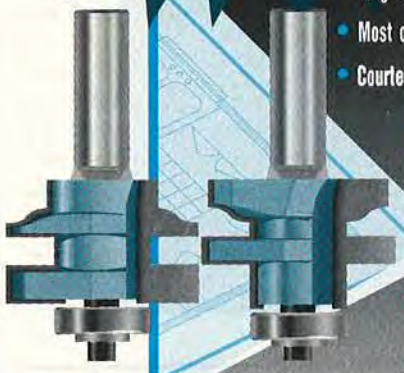

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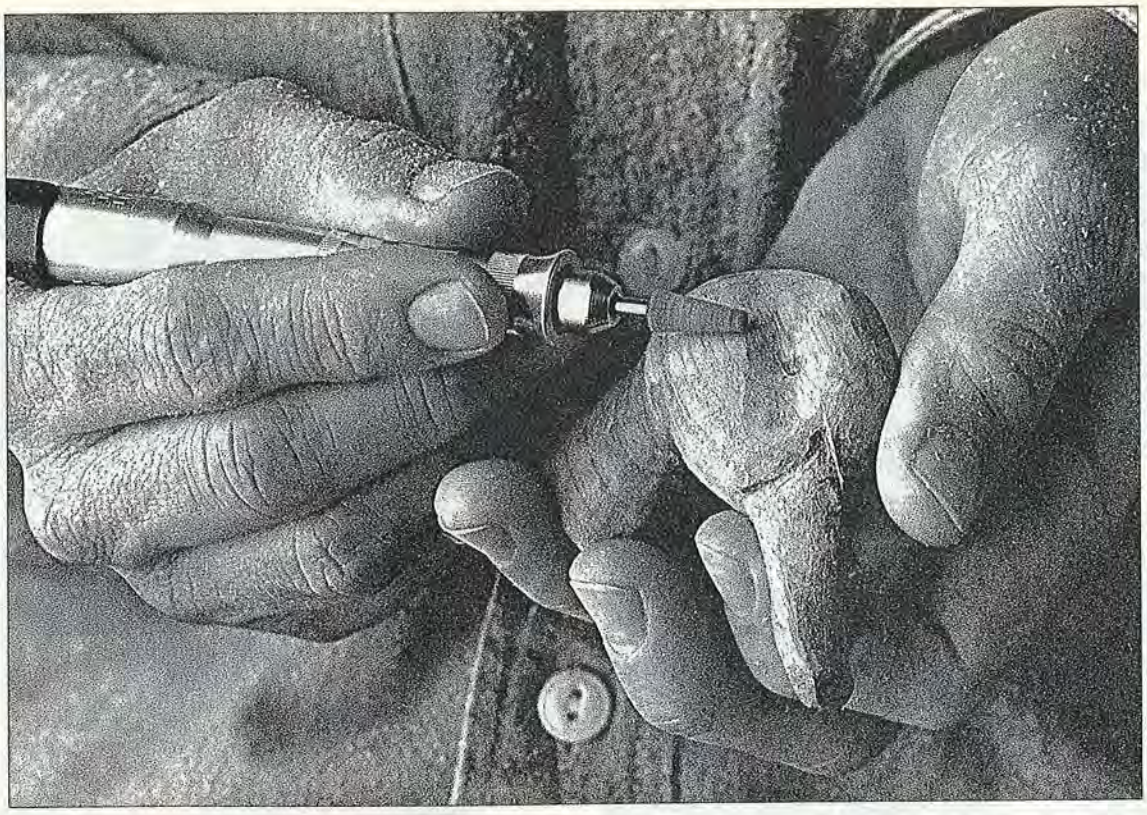

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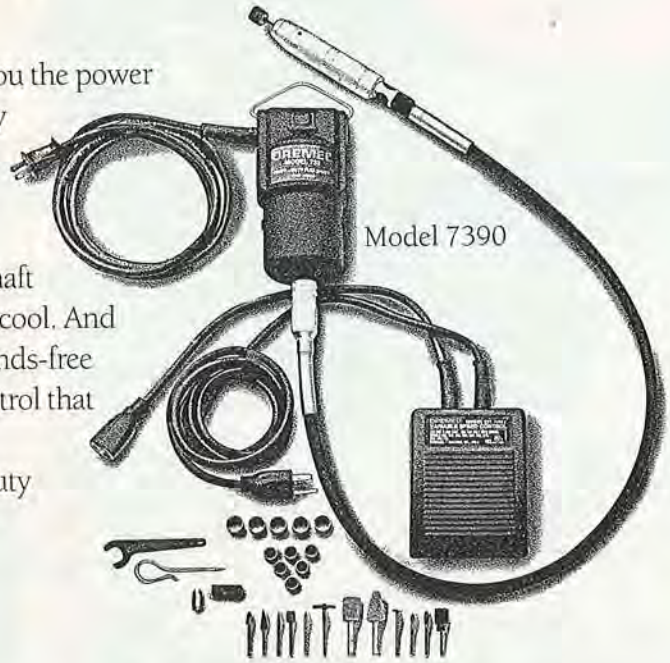

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TALKING BACK

Print this article

We welcome comments, criticisms, suggestions, and even compliments. Send your correspondence to: Talking Back, Better Homes and Gardens® *WOOD*® Magazine, 1912 Grand Ave., Des Moines, IA 50309-3379.

Revisiting avocado

The "Wood Anecdote" in the August 1993 issue described avocado wood as "ugly grayish-brown," and not useful for woodworking. This description does not fit two species of avocado wood from my area of California. The Fuerte variety produces wood of a rich, warm, walnut color with a beautiful grain. The Anaheim variety is lighter in color with straighter grain.

I use avocado wood to craft clock cases, carvings, turned bowls, and, most recently, for intarsia. The wood works well, and requires no stain because of the natural beauty.

— Stewart Stodder, Fallbrook, Calif.

Dust system adapters

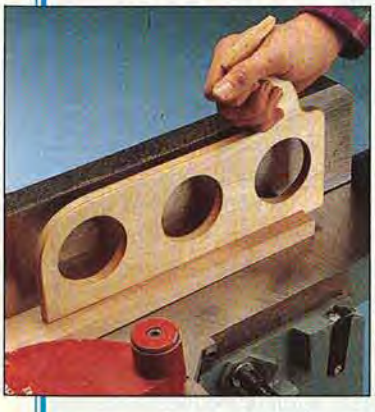
I just installed a complete dust-collection system in my home shop, using information from "Central Dust Collection" from the June 1991 issue. I followed your instructions, but the dust-collector hoses did not fit the PVC pipe and fittings.

For a solution, I used 11.5-ounce coffee cans with both ends removed to connect the 4" hoses, 15-ounce vegetable cans for the 3" hose, and small plastic bottles as connectors for the 2" hose. Large rubber bands help secure any loose joints.

— Norm Knight, Hemet, Calif.

It takes an extra hand

I have been using pushsticks similar to the one shown in the "Great Ideas for Your Shop" in the August 1993 issue, for many years on both my tablesaw and jointer. The design you published requires the use of a second hand on the end of the pushstick to hold the wood flat to the machine table. By itself, this pushstick could be used for short pieces only. Longer boards would require the use of a second pushstick to prevent the leading end of the board from being lifted and scalloped as it is fed across the jointer knives.



— Tom Rose, Los Angeles, Calif.

Continued on page 8

If Only Leonardo Da Vinci Had An RBI Hawk Precision Scroll Saw.

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TALKING BACK

Continued from page 7

Fine pine from California

In your article "Tracking Down Good Wood" (June 1993 issue), you stated that the best Ponderosa pine comes from Oregon's high-altitude areas. I don't doubt that a lot of good pine comes from Oregon, but the western slopes of the Sierra Nevada mountains, the southern slopes of the Cascade range, and the area north of the Sacramento Valley in California supply a large percentage of quality pine.

I worked for the McCloud, California, lumber mill for 39 years. This mill produced 600,000 board feet of material every day, and enjoyed the reputation of producing some of the finest pine lumber anywhere in the world. The mill closed in 1979, but the current owner of the surrounding timberlands still harvests logs in the area, with a large portion of these logs being shipped to sawmills in southern Oregon.

— Ed Vandemark, Dunsmuir, Calif.

Thanks for expanding our boundaries, Ed.

Where in the world is the AWPTA?

In the "Finishing Touches" column of your December 1989 issue, you made mention of the Antique Woodworking Power Tool Association. When I wrote to the address listed, my letter was returned. Do you know of a current address for the AWPTA?

— Tim Byrne, Shoreview, Minn.

We haven't heard from these folks in about two years, Tim. If anyone out there has a more recent address for the Antique Woodworking Power Tools Association, please write us.

Mason & Sullivan finds a new owner

In the fall of 1992, Mason & Sullivan was purchased by Woodcraft Corporation. By the end of November 1993, a new Mason & Sullivan catalog will be published. To the largest extent possible, we are attempting to duplicate the product line that previous Mason & Sullivan customers have become accustomed to. To order the new catalog, call our Woodcraft Corporation customer service number 800/535-4482.

— Jody Garrett, Woodcraft Supply Corp.

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- Use 30T if ripping mostly 2" - 3" hardwoods.
- Side wobble held *.001* - others .004/.010 is common! RAISE for THICK woods, LOWER for THIN woods and *perfect cut everything!* All 5/8" holes, unless otherwise noted.

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14" x 40T x 1" BORE	$215	$149	9" x 40T	$146	$109
14" x 30T x 1" "	195	139	30T	125	99
12" x 40T x 1" "	183	129	*8-1/4" x 40T 3/32	136	99
12" x 30T x 1" "	162	119	8" x 40T 3/32	136	99
10" x 40T 1/8 & 3/32	156	119	30T 3/32	115	89
30T 1/8 & 3/32	135	99	7-1/4" x 30T 3/32	112	69
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- THIN KERF:
  Saves 1/3 wood loss on each cut, radial or table. Feeds easy when used for moderate rip and crosscut on table saw. **Reduces "JUMP IN"** greatly for better "PULL CONTROL". Practically **eliminates bottom splinter** on RADIAL-CROSS CUT.
- Totally stops ALL bottom and top splinter on ply veneers in push-cut mode on RADIAL.
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14" x 60T x 1" 1/8"	$224	$159
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10" x 60T x 5/8" 3/32" K	162	129
9" x 60T x 5/8" 3/32" K	156	119
8" x 60T x 5/8" 3/32" K	150	109
New 8-1/4" x 40T x 5/8" 3/32" K	136	99

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DURALINE Hi-AT

Note: *Fine Woodworking Editorial Nov./Dec. 1988 No. 73, pg. 65, S.N. recommends high alternating top bevel (ATB) thin kerfs and large blade stiffeners for smoothest cuts on RADIAL SAW, etc.*

Jim Forrest, President and designer microscoping cutting edge.

All 5/8" holes. Boring up to 1-1/4" $7.50 extra
Larger holes - time basis. Shipping $4.50

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9" x 80T 1/8" & 3/32"	207	$179
10" x 80T 1/8" & 3/32"	207	$159
Special Sale on 10" Only $159		
12" x 80T x 1" 1/8"	212	$181
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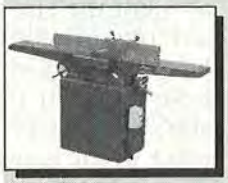

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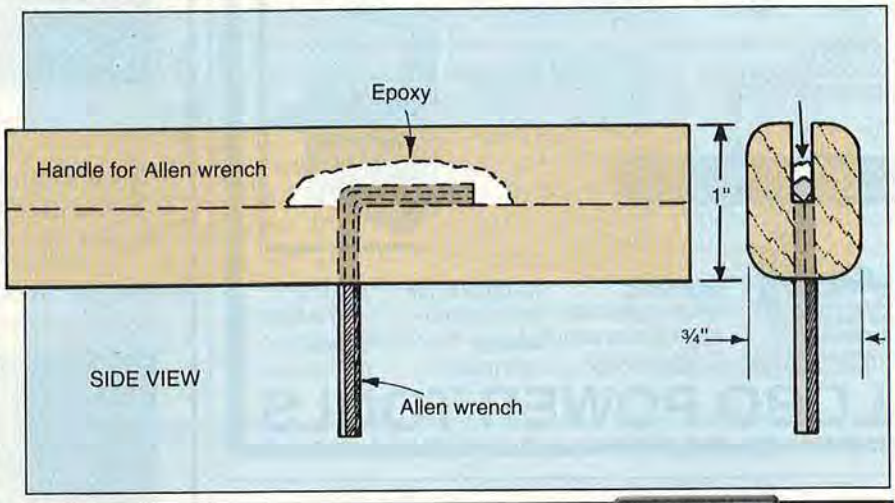
Handle saves hands from allen wrench

Those L-shaped allen wrenches really dig into your hand during repeated use—when you're threading a lot of inside cuts on certain scrollsaws, for instance.

TIP: For relief, add a comfortable hardwood handle to the wrench. Along one edge of ¾×1×12" stock, saw a groove the width of the allen wrench (⅛" in the instance shown) and about ½" deep. Round over the edges of the stock by sanding or routing. Then, cut the handle to length, taking into account the size of your hand and any obstructions the handle will have to clear when in use. Drill a hole through the bottom of the slot, and epoxy the wrench into place in the handle.

—David Weber, Latrobe, Pa.



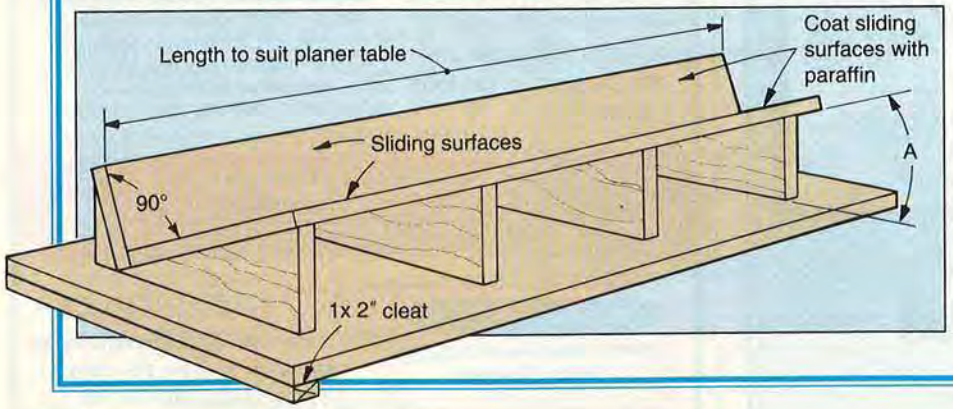
Planer makes bevels a saw can't handle

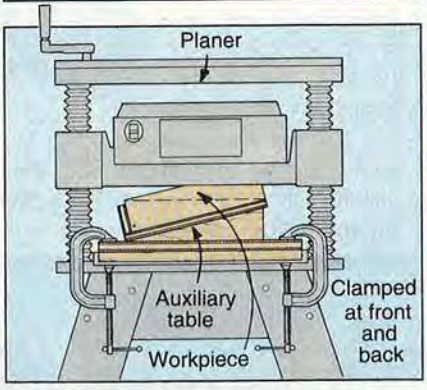
Sometimes, you want to cut a bevel that your tablesaw or jointer just can't handle, such as beveling the full width of a long piece of 8"-wide stock.

TIP: Do the job with your planer, employing an auxiliary table made from scrapwood and plywood like the one shown *below*. Make it long enough to reach from the front edge of the planer's infeed table to the back edge of the outfeed table. Cut angle A accurately; it determines the bevel angle. Sand the sliding surfaces smooth and coat them with paraffin wax. Clamp the fixture to the planer table. Scribe a reference line for the bevel on the end of your workpiece, then lay it on the angled surface of the auxiliary table. Feed it through the planer, taking a series of shallow cuts to shave a perfect bevel on the face.

—Todd Grieser, Archbold, Ohio

For his tip, Todd receives a Sears/Craftsman 10" benchtop bandsaw, model no. 24450, *above*.





Continued on page 12

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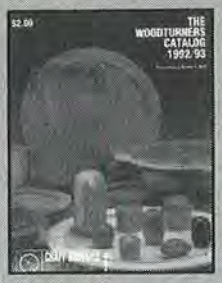

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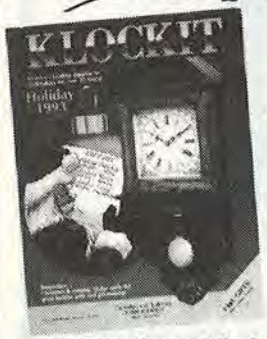

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TIPS FROM YOUR SHOP (AND OURS)

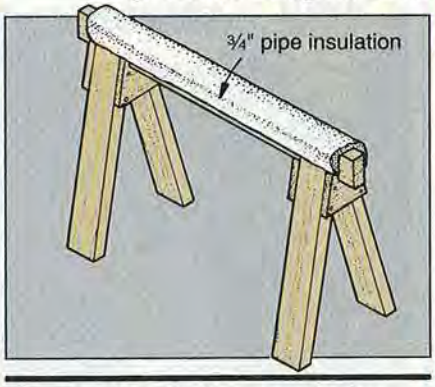
Continued from page 10

Pipe insulation protects shop projects from damage

Your sawhorses mar project parts laid across them. And, you're just not having much luck keeping folded shop rags in place on the 2×4 sawhorse edges while wrestling a large panel onto them.

TIP: Open up a piece of formed foam insulation for ¾" pipe and slip it over the sawhorse top. It grips the sawhorse well enough to stay in place, and protects even finish-sanded parts from damage.

–R.J. Cooke, Newington, Conn.



Spray glue helps sandpaper stand up to machine use

Plain sandpaper doesn't last very long on your finishing sander. It wrinkles and tears and slips loose from the clamps.

TIP: Apply spray adhesive to the back of the sandpaper. When it dries, you'll have sticky sandpaper that won't slide around on the sander pad, yet will be easy to remove. To save time, prepare the sheets in batches. Stack them interleaved with waxed paper to keep them from sticking together.

–Frank Pellicone, North East, Md.

Spray adhesive on back side of sandpaper
SPRAY ADHESIVE
Place waxed paper between adhesive-coated sandpaper sheets for storage

Continued on page 14

The Professional Angle ... Milwaukee's New Magnum™ miter saw.

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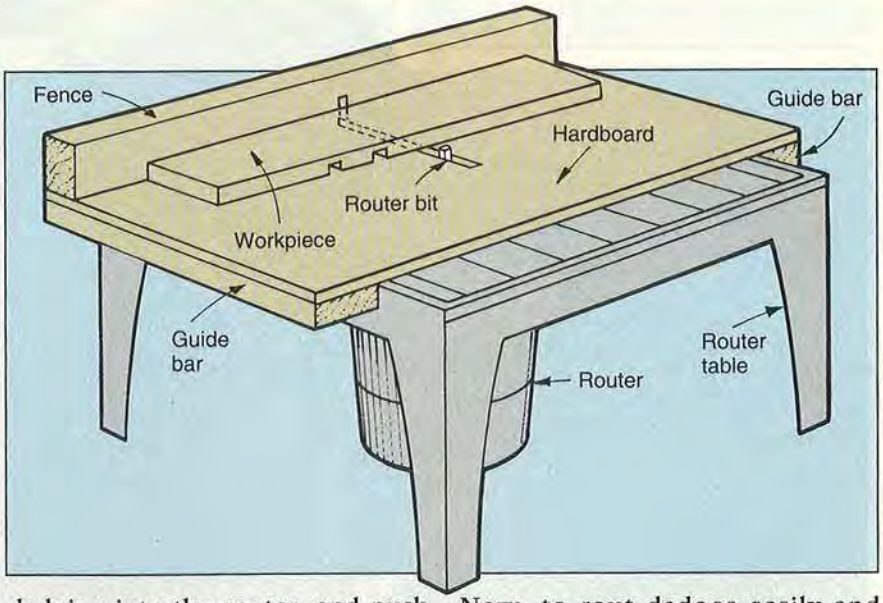
TIPS FROM YOUR SHOP (AND OURS)

Continued from page 12

Sliding tabletop eases dado routing

Routing dadoes—grooves across the grain—poses several challenges, especially on narrow stock. Securing the workpiece, spacing the dadoes, and guiding the router straight over the stock become even more difficult on small workpieces.



TIP: A sliding top for your router table makes dado-routing a walk in the park. To build a sliding tabletop, start with a piece of ⅛"-thick tempered hardboard as wide as the front-to-back dimension of your router table and about 4" longer than the end-to-end distance. Attach a 1×2 guide bar across each end on the underside, locating them so the hardboard slides freely from front to back on the table without excessive side play. Chuck the straight bit for dadoing into the router, and push the hardboard sliding tabletop into it, cutting a slot about halfway across the hardboard. Notch a 1×2 fence to clear the bit, and then mount it at the back of the sliding top, perpendicular to the slot.

Now, to rout dadoes easily and accurately, hold the workpiece firmly against the fence and slide the tabletop across the bit. Add stopblocks or indexing blocks made of scrap wood to the fence for repetitive cuts.

— C. E. Rannefeld, Decatur, Ala.

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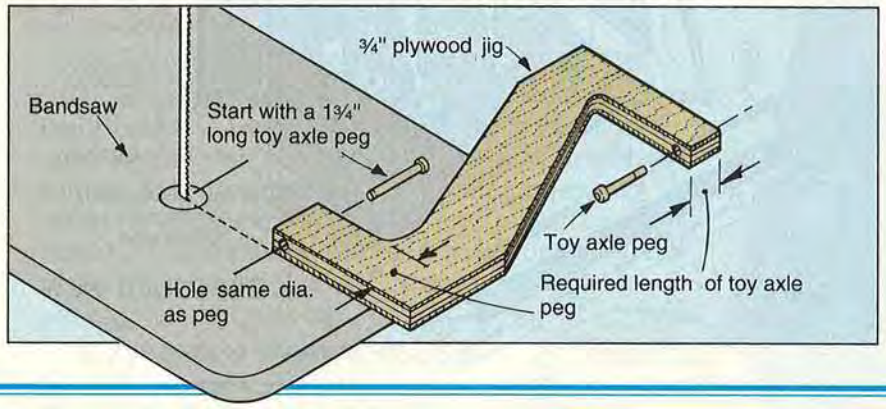
Shorten axles easily with a simple saw jig

Shortening toy axle pegs doesn't seem like it should be a troublesome job—until you try to do it. You can't lay the axles on the saw table for a safe cut because of the mushroom-head end, and their small size makes them hard to hang on to.

TIP: Construct the simple jig shown in the drawing. (We show one for trimming two different axle lengths or diameters; you could make a jig with only one notch if you work with only one size.) Slide the peg to be shortened into the appropriate hole, inserting it from the notched side of the jig. Then, holding the peg end against the inside of the notch, cut it flush to the end of the jig with a bandsaw, scrollsaw, or handsaw.

—David R. McClellan, Markham, Ont.



MORE TIPS FROM OUR WOODWORKING PROS

- Our heart-shaped emblem on *page 48* will look great atop your favorite jewelry box or small project. Or, epoxy it to a stick pin and wear it as a piece of great fashion jewelry.

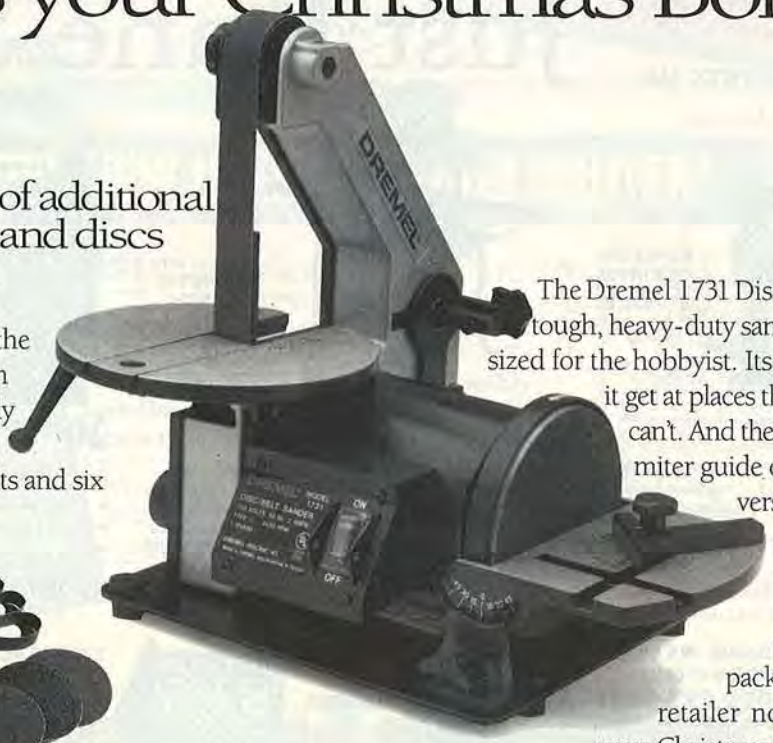
- Build our notched router table or fence on *page 48*. It's a guaranteed finger-saver when it comes to routing small-diameter discs and other itsy bitsy parts that could put your fingers too close to the sharp, spinning bit.

- Looking for inexpensive backing for a project? Skip ¼" plywood, and turn to economy tongue-and-groove knotty-pine plank paneling like that used on the plate rack on *page 49*.

Here's your Christmas Bonus.

Over $28 worth of additional sanding belts and discs free!

Now when you buy the Dremel 1731 combination Disc/Belt Sander in specially marked packages, you'll get a bonus of six extra belts and six extra discs included free.



The Dremel 1731 Disc/Belt Sander is a tough, heavy-duty sander that's perfectly sized for the hobbyist. Its one-inch belt lets it get at places that a bigger sander can't. And the five-inch disc with miter guide offers even greater versatility.

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Part	Finished Size			Matl.	Qty.
	T	W	L		
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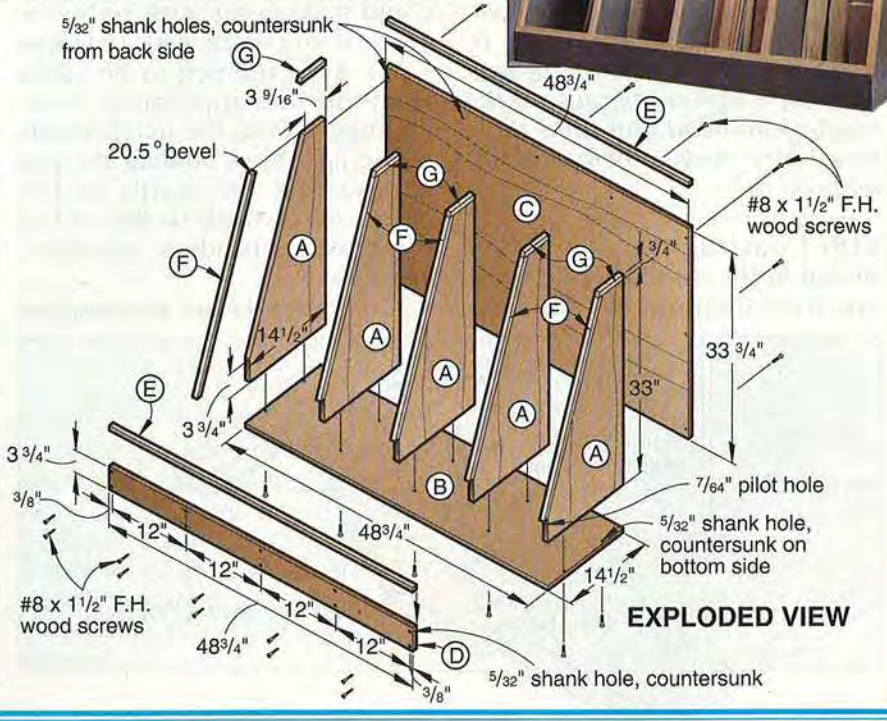
B	¾"	14½"	48¾"	P	1
C	¾"	33¾"	48¾"	P	1
D	¾"	3¾"	48¾"	P	1
E	¾"	¾"	48¾"	B	2
F	¾"	¾"	31½"	B	5
G	¾"	¾"	43⅜"	B	5

Materials Key: P–plywood, B–birch



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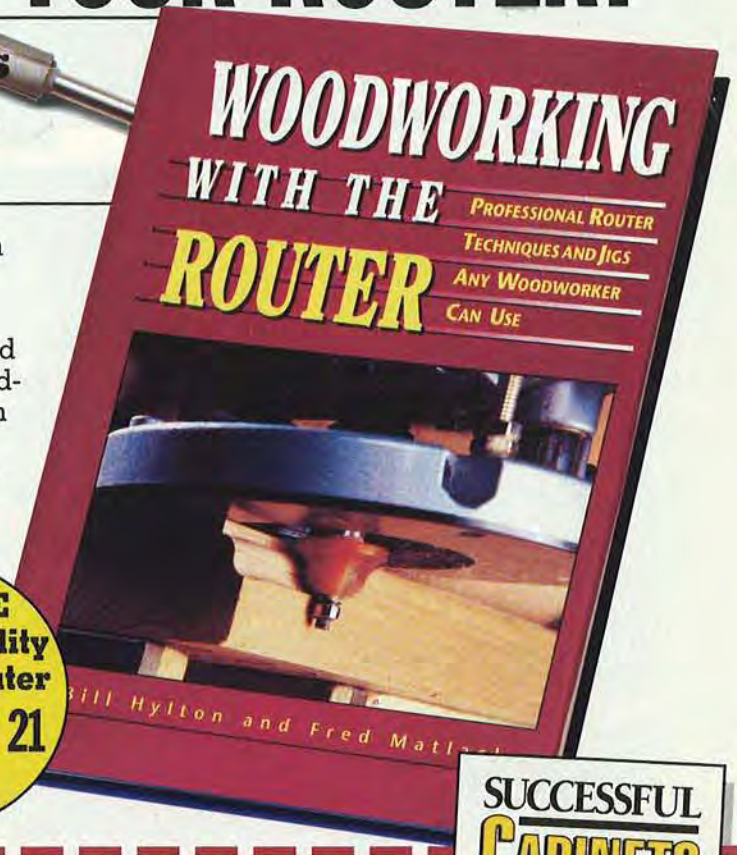

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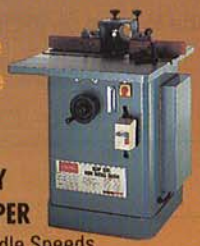

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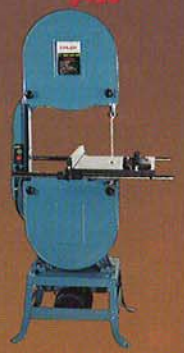

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ASK WOOD

Print this article

Whether your woodworker's license reads "Beginner," "Intermediate," or "Advanced," you're bound to have a few questions about your favorite hobby. We can help by consulting our staff and outside experts. Send questions to:

Ask WOOD
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Check those cracks!

What can be done to slow or stop the cracking that happens at the ends of tree limbs and trunks I harvest? I have tried coating the log ends with a variety of products and have not had good results.

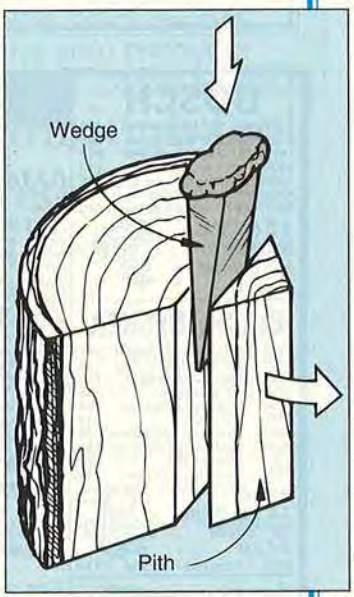
—Charles Schultz, Orlando

Charles, you are seeing the results of uneven drying of the log. The sapwood, or the outer 1½ to 2" of the log, shrinks much faster than the heartwood or center of the log while drying. This results in a stress build-up that leads to cracking.

Keep these things in mind when drying a log:

1) Use logs and limbs under 6" in diameter when drying wood in the round. The larger the diameter of the log, the greater the resulting build-up of stress.

2) Logs dry fastest at the ends, with the drying process slowing as it moves toward the center of the section. Plan your cuts on the log to allow 6 to 8" of waste wood at each end of the piece you wish to use.



3) Different types of wood will dry at different rates. Harder and denser woods, such as beech, hickory and some oaks, are more likely to crack while drying. For more information, look at shrinkage tables in books like The Encyclopedia of Wood *(Sterling Publications, 1989) or* Understanding Wood *by R. Bruce Hoadley (Taunton Press, 1980).*

4) Use a chainsaw, or wedges and maul, to split the logs into halves or quarters. Then remove the pith or very center of the wood with a wedge or froe. This will allow these pieces to dry with less cracking. Coat the end grain with paraffin or a commercial sealer to slow the drying.

Continued on page 20

ASK WOOD

Continued from page 19

Moisture and wood, part II

Your articles frequently mention the need to purchase and work wood with a low moisture content. But what effect does prolonged storage of the wood have on moisture content?

— Brian Foreman, Eagen, Minn.

Brian, the moisture level in wood changes with the humidity level in the air around the wood. Kiln drying the wood does not stop this exchange and applying a finish will only slow it down.

Wood comes from the drying kiln with a moisture content of around six to eight percent. This low moisture content will change as the lumber adjusts to the surrounding atmosphere. Boards of the same type of wood will eventually reach an approximately equal, although constantly changing, level of moisture.

Stability in a wooden item does not refer to its not taking on moisture. Rather it refers to the separate pieces of wood taking on moisture evenly. For more stable finished work, buy your wood well ahead of building your project. Stack and sticker this lumber in your shop, allowing it several days to equalize in moisture content before using it.

Gluing ebony

What type of glue should I use on ebony?

—Pat Asquith, Cleveland, Tenn.

Pat, the answer to your question depends on how you intend to use the ebony. The experts at Franklin International recommend their Titebond brand yellow woodworker's glue for gluing ebony. Musical instrument makers often use hot hide glue for ease of repair and regluing. For inlay work, use epoxy or super (cyanoacrylate) glues.

Carefully fit the joint when gluing ebony. The density and hardness of this wood partially blocks the penetration of the glue, reducing the strength of the glue joint..

The joint should also be fresh, without dust, oils or dirt to interfere with the bond. Many dense tropical hardwoods, such as rosewood and cocobolo, have natural oils that interfere with the bonding of the wood and the glue. We recommend you clean the joint surfaces with lacquer thinner or acetone before gluing these woods. Officials from Franklin International will answer gluing questions on their technical support number: 800/877-4583.

Continued on page 22

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NT45A 18 g Finish Nailer 274
NT65A 16 g Finish Nailer 314
N3824A 1" Roofing Stapler 329

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DS1000 New! Detail Sander 49
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QS1000 Quick Stand 49
R50K Trimmer 2 base Special 99
R70K Trimmer 2 base Special 99
RE600 3hp Plunge Router 209
RS112 Random Orbit Sander 52
SC160 Scroll Saw 138
TFD170-2 9v Cord's Drill -2 batt. 148
TFD220-2 12v Cord's Drill -2 batt. 164
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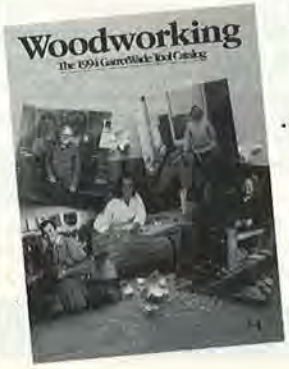

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ASK WOOD

Continued from page 20

Looking for jewelry-box hardware

I've been building small chests and am unable to find suitable hardware such as hinges and drawer pulls. These chests vary from jewelry boxes to decorative storage chests. Could you help me locate the hardware?

—George Lindenberger, Norwood, Ma.

Several catalogs and many woodworking stores sell such hardware. In particular, Garrett Wade offers a catalog called "Classic Hardware." There, you'll find an attractive selection of quality brass hardware for all cabinetry projects. The catalog costs $3, or $1 with a tool order. Order the publication by calling 800/221-2942.

Also, Lee Valley—a Canadian firm—has a fine selection of small box hardware. Write them at P.O. Box 6295, Station J, Ottawa, Ont. K2A 1T4. Or call 800/461-5053 from anywhere in the U.S. All other calls, 613/596-0350.

Higher prices has him searching for cheaper plywood substitutes

With lumber prices going through the roof, I've been wondering about the differences between OSB (Oriented Strand Board, or waferboard) and A-C plywood, and particleboard. When subjected to heat change, humidity change, and wetting and drying, do they respond much differently? Since particleboard and OSB are cheaper than plywood, I thought I'd ask.

—Scott Ladd, Penobscot, Maine.

You've brought up some good questions, Scott. We asked Dobbin McNatt, technologist at the Forest Product Laboratory, Madison, Wisconsin for his expert opinion. "A-C plywood is an exterior grade plywood while OSB primarily goes into flooring and sheathing and is not exterior grade," says McNatt. "OSB is more compressed and heavier than plywood but does not stand up to wet weather."

If you are looking for cheaper construction materials for woodworking projects, McNatt suggests that you consider Medium Density Fiberboard or particleboard. Both products hold a tight edge, and have uniform density with a hard surface. You can cover them with veneer or veneer plywood and they have good milling qualities. Plus, they're cheaper and much heavier than plywood.

Your lumberyard should have information on the various grades and performance abilities of fiberboard, particleboard, and plywood. Ask them about the specific products they carry.

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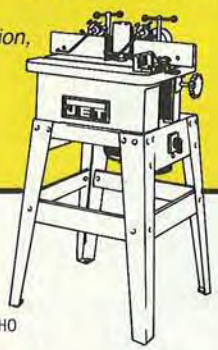

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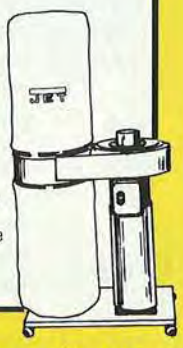

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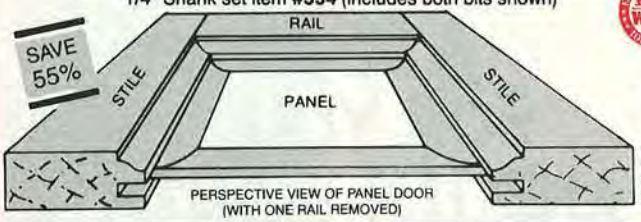

PERSPECTIVE VIEW OF PANEL DOOR (WITH ONE RAIL REMOVED)

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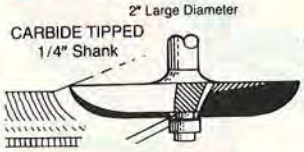

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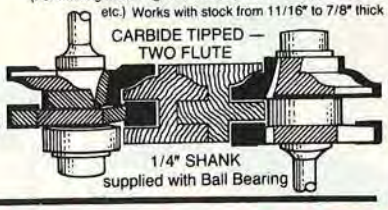

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#601	Solid Carbide	1/8" Spiral Cutter	*Proper Adaptor Will Be Supplied	1/8"	1/2"	1/4" *	$ 9.00
#603		1/4" Spiral Cutter		1/4"	3/4"	1/4"	$12.00
#903		1/4" Spiral Cutter		1/4"	3/4"	1/2" *	$12.00
#904		3/8" Spiral Cutter		3/8"	1"	1/2" *	$24.00
#905		1/2" Spiral Cutter		1/2"	1 1/2"	1/2"	$29.00
#530		3/16" Edge Beading	3/16" Dia. of Circle		1/2"	1/4"	$15.00
#531		5/16" Edge Beading	5/16" Dia. of Circle		1/2"	1/4"	$15.50
#350		1/8" Round Over	1/8" R	3/4"	3/8"	1/4"	$11.00
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#209		3/8" Round Over	3/8" R	1 1/4"	5/8"	1/4"	$15.00
#355		1/2" Round Over	1/2" R	1 1/2"	3/4"	1/4"	$17.00
#655		1/2" Round Over	1/2" R	1 1/2"	3/4"	1/2"	$17.00
#656		3/4" Round Over	3/4" R	2"	7/8"	1/2"	$21.00
#199		Multiform Moulding	Unlimited Patterns	2 1/4"	2"	1/2"	$40.00
#205		1/4" Cove	1/4" R	1"	1/2"	1/4"	$12.00
#206		3/8" Cove	3/8" R	1 1/4"	9/16"	1/4"	$13.00
#207		1/2" Cove	1/2" R	1 1/2"	5/8"	1/4"	$14.00
#643		1/2" Cove	1/2" R	1 1/2"	5/8"	1/2"	$15.00
#208		3/4" Cove	3/4" R	1 7/8"	3/4"	1/2"	$26.00
#231		5/32" Roman Ogee	5/32" R	1 1/4"	15/32"	1/4"	$16.00
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#506		1/2" Pattern	Flush Trim	1/2"	1"	1/4"	$15.00
#508		3/4" Pattern	Flush Trim	3/4"	1"	1/4"	$17.00
#366		1/8" Slot Cutter	3/8" Deep	1 1/4"	1/8"	1/4"	$14.00
#368		1/4" Slot Cutter	3/8" Deep	1 1/4"	1/4"	1/4"	$14.00
#204		3/8" Rabbeting	3/8" Deep	1 1/4"	1/2"	1/4"	$13.00
#670		3/8" Rabbeting	3/8" Deep	1 1/4"	1/2"	1/2"	$14.00

ITEM NO.	BEST CUT BEST PRICE	DESCRIPTION	ANGLE/DEPTH/RADIUS CIRCLE DIAMETER	LARGE DIA.	CUTTING LENGTH	SHANK SIZE	PRICE
#211		3/8" Core Box	round nose	3/8"	3/8"	1/4"	$10.00
#212		1/2" Core Box	round nose	1/2"	11/32"	1/4"	$13.00
#418		3/4" Core Box	round nose	3/4"	5/8"	1/4"	$15.00
#213		1" Core Box	round nose	1"	3/4"	1/2"	$17.00
#548		Lockmitre		2"	7/8"	1/4"	$32.00
#214		1/4" Straight	plunge cutting	1/4"	3/4"	1/4"	$ 6.50
#216		3/8" Straight	plunge cutting	3/8"	1"	1/4"	$ 6.50
#474		1/2" Straight	plunge cutting	1/2"	1"	1/4"	$ 7.00
#219		3/4" Straight	plunge cutting	3/4"	1"	1/4"	$ 9.50
#779		3/4" Straight	plunge cutting	3/4"	1 1/2"	1/2"	$10.00
#462		1/2" Bull Nose	1/2" Dia. of Circle		3/4"	1/4"	$16.00
#464		3/4" Bull Nose	3/4" Dia. of Circle		1"	1/4"	$21.00
#764		3/4" Bull Nose	3/4" Dia. of Circle		1"	1/2"	$21.00
#545		Tongue & Groove	Straight	1 5/8"	1"	1/4"	$29.00
#845		Tongue & Groove	Straight	1 5/8"	1"	1/2"	$29.00
#546		Tongue & Groove	Wedge	1 3/16"	1"	1/4"	$29.00
#846		Tongue & Groove	Wedge	1 5/8"	1"	1/2"	$29.00
#450		1/8" Beading	1/8" R	3/4"	3/8"	1/4"	$11.00
#233		1/4" Beading	1/4" R	1"	1/2"	1/4"	$13.00
#454		3/8" Beading	3/8" R	1 1/4"	5/8"	1/4"	$15.50
#455		1/2" Beading	1/2" R	1 1/2"	3/4"	1/4"	$17.00
#500		3/8" Flush	Trimming	3/8"	1/2"	1/4"	$ 7.00
#501		3/8" Flush	Trimming	3/8"	1"	1/4"	$ 7.50
#503		1/2" Flush	Trimming	1/2"	1"	1/4"	$ 8.50
#221		1/2" Flush	Trimming	1/2"	1 3/16"	1/2"	$ 8.00
#558		Thumbnail		1 3/16"	3/8"	1/4"	$18.50
#858		Thumbnail		2 1/2"	3/4"	1/2"	$35.00
#579		Molding Plane		1 1/8"	1 3/4"	1/4"	$31.95
#879		Molding Plane		1 1/8"	1 3/4"	1/2"	$31.95

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FROM THE BASE OF COLORADO'S ROCKY MOUNTAINS, JERRY PATRASSO SKILLFULLY CRAFTS

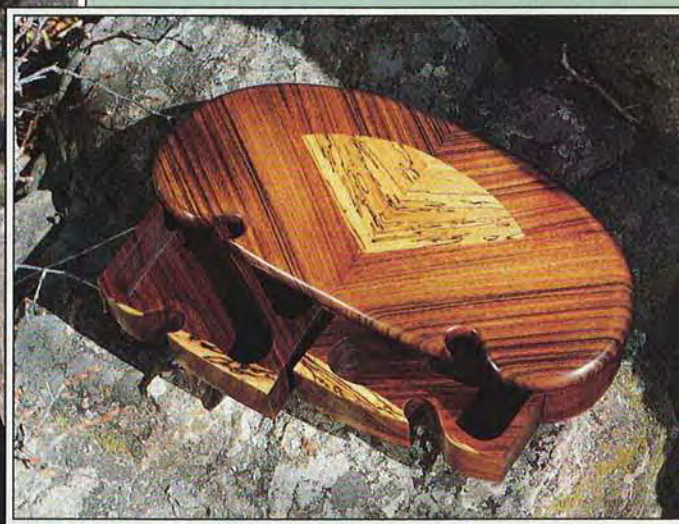
BANDSAW BOXES TO BEHOLD

Print this article

Jerry Patrasso grew up in the shadow of Chicago's Wrigley Field, home of the Cubs. The only wood he even remotely cared about then was the length of turned, straight-grained white ash that batters swung from their shoulders. Twenty-some years later, at age 41, his tastes have changed.

Now, in his Boulder, Colorado, workshop, Jerry creates expertly crafted boxes from a multitude of unusual, eye-catching woods. The fact is, these days Jerry can't get enough of wood—he's crazy about it.

Continued



▲ Light spalted pecan matches up with amarillo's striking grain in this eye-catching example of Jerry's skill.

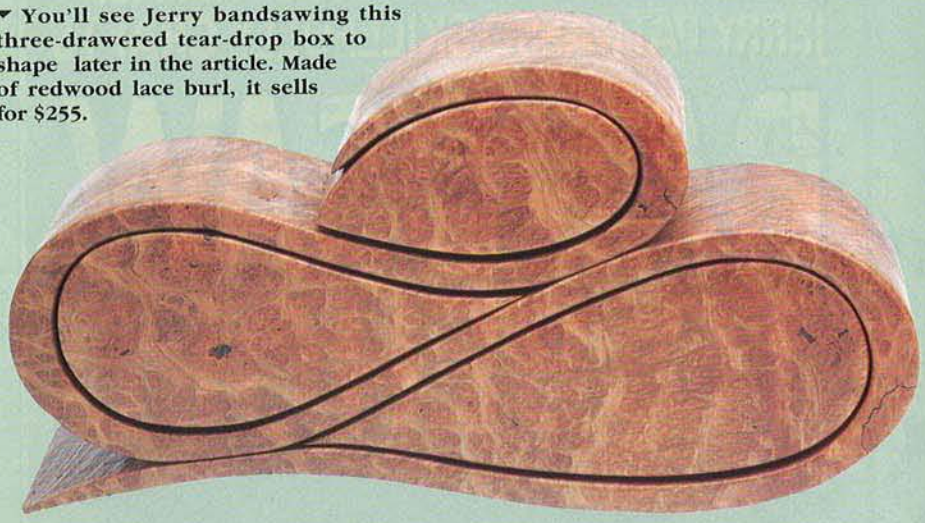
◀ At Sanitas Trailhead, a Boulder mountain park, Jerry Patrasso shows off his boxes in the setting that frequently inspires him.

BANDSAW BOXES

Natural treasures

"I remember, as a kid, having special containers where I kept my prized possessions, like baseball cards and ticket stubs from Cub's games," says Jerry. "Now, when I make a box, I think of it as the special place where the buyer will put treasured items. And that's why I use wood that's highly unordinary, to make the boxes extra special."

Jerry's design theory belies his true love of the material. "Boxes should be designed to emphasize the natural beauty of the material," he explains. "I want people to be attracted by the eyes in bird's-eye figure, the swirls in burl, or the beauty of evenly matched grain, not the cleverness of the box's cuts or any intricacies of drawers that I could put in."



▼ You'll see Jerry bandsawing this three-drawered tear-drop box to shape later in the article. Made of redwood lace burl, it sells for $255.

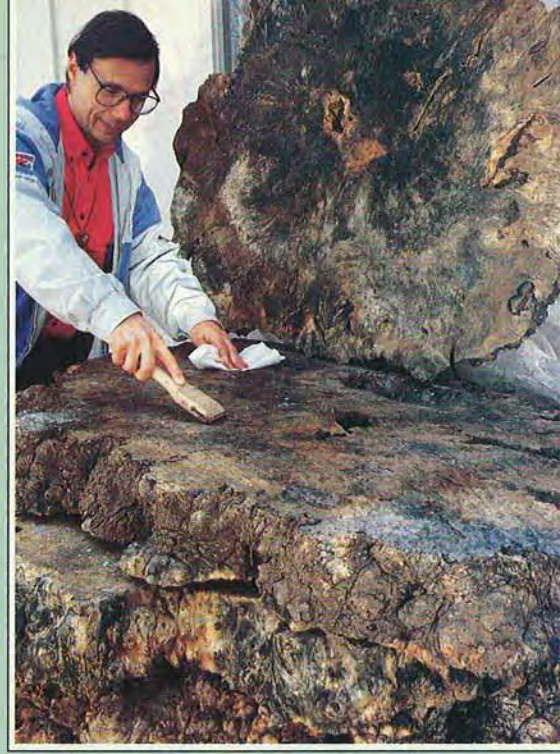
▼Jerry's customers select from these woods, and more: 1. redwood lace burl 2. buckeye burl 3. bigleaf maple burl 4. amboyna burl 5. myrtle burl 6. manzanita burl 7. madrone burl 8. quilted bigleaf maple 9. white oak burl 10. ceanothus burl 11. cherry burl 12. spalted hard maple 13. curly walnut

And for the beholders of his boxes, there's plenty for the eyes to feast on. Spalted buckeye burl, a distinctive blue-gray, explodes with bursts of forsaken buds. Redwood lace burl entices with its intricate, doily-like pattern. Fiddleback claro walnut gleams in chocolate iridescence. (See the photograph *below* for these woods and more.)

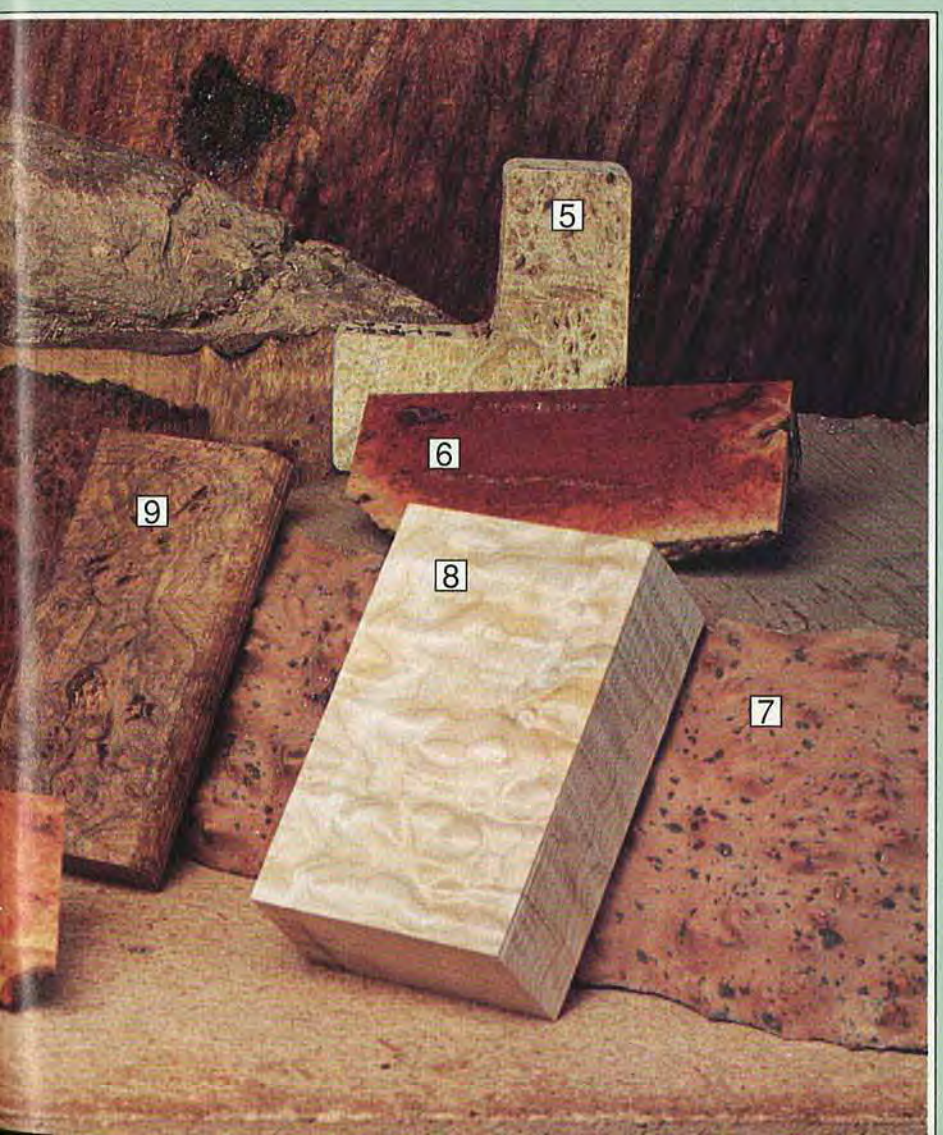
But almost as fascinating as Jerry's wood is the story behind it. "I picked up the fiddleback claro walnut at a nut orchard near California's Silicone Valley," he recalls. "The owners were selling firewood, and it was in the pile. I dug through it, pulling out chunks I wanted while the people kept insisting I buy the whole cord."

Then, there's the awesome stack of buckeye root burl slices outside next to his shop, as shown in the photo *right*. "These came from California, too, and cost me about $500 in freight," he says of the 4'-diameter pieces. "The original burls were so huge that the logger blasted them out of the ground with dynamite!"

Jerry, it seems, finds wood wherever he goes, and he travels a lot, always with his eye out for wood. On a visit to his wife Beth's parents in Wisconsin, he discovered slabs of burled white oak at a small local mill. During a trip to New Hampshire, he talked a woodturner out of 800 pounds of spalted maple, birch, and sycamore. In Oregon, he acquired quilted bigleaf maple that loggers had discarded in favor of straight-grained timber. So go the stories, wood to wood, state to state.



▲ **These huge slices of buckeye root burl will eventually spalt to the gray color displayed in the foreground.**



"I once relied pretty heavily on exotic woods for color and grain," Jerry comments. "But I've switched almost entirely to native American wood now, although none of it is run-of-the-mill. Customers really don't want to buy anything of wood that might have come from the rain forest."

The trade that paid: computers for sawdust

Jerry's bandsawn boxes reflect the thought, care, and craftsmanship that he puts into every one. It's hard to imagine that he at one time couldn't tell oak from maple or end grain from side grain. "I graduated from college with a degree in computer science, specializing in programming languages like Fortran," Jerry says. "Then I went to work for the State of Wisconsin. But it wasn't long before I realized that I was more a hands-on type person."

To find an outlet for his job frustration, Jerry signed up for woodworking in evening adult-education classes, and the choice suited him fine. Eventually, he went to work for a professional furniture-maker in Madison. "David Flatt was best at contemporary bent-

Continued

BANDSAW BOXES

wood furniture, but he had a line of bandsawn boxes, too," Jerry remembers. "After awhile, I took over the boxes." The rest, as they say, is history.

Eleven years ago Jerry and Beth set out on their own, arriving in Boulder with little more than determination. Beth, who has a library-science degree, got a job at the Boulder Public Library, where she still works as a research librarian. Jerry started making boxes.

"It hasn't been easy," Jerry says of his career change. But he'd be the last one to say that it hasn't been fun. "I like working by myself, and with the wood. In fact, I don't know what I could do that I'd like any better."

And to Jerry, Boulder is the perfect location. Here, he enjoys the beauty of the mountains as much as the wood he so skillfully works. "Growing up, I really never had much of a playground. Now I have the Rockies," he laughs.

Batches of boxes for Boulder

For years, Jerry's boxes went to galleries and shops in the East, north in Montana, and further west in California. Today, though, most make their way out of Boulder in the hands of customers. Surprisingly, that's because almost his entire annual output of 600 to 700 boxes is sold through the local arts and crafts co-op store.

"The Boulder Arts and Crafts Cooperative does great for me. It's right downtown in the high-traffic Pearl Street Mall," says Jerry. "We have over 60 members, but show work by about 100 Colorado arts and crafts people."

Jerry's boxes fall into two classes: production models and commissions. But by "production" models, Jerry isn't referring to assembly-line manufacture. Rather, he makes them in batches of eight to 10, roughing them out from blocks all at one time, and then cutting the drawers, sanding, and finally finishing. Completed, the production boxes sell for $26 to $140, depending on size and type of wood. Commission boxes are another story.

"Commissions run up to about $500, and the buyers select the wood and the way it's used," Jerry says. "Not everybody views wood exactly the same way."

Three sides to saw, and all to finish

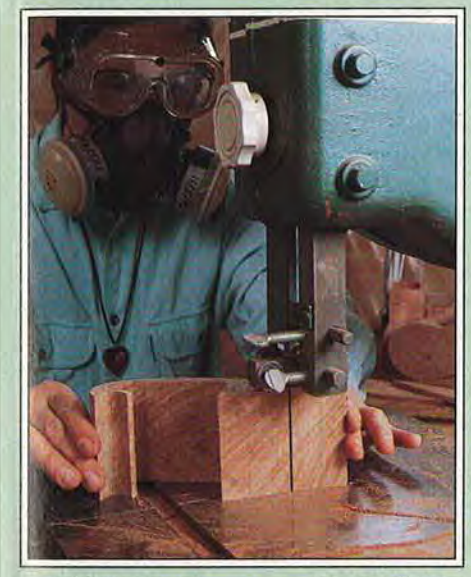
"My bandsaw only has a 6" throat, so that limits one dimension of my boxes," comments Jerry regarding his sawing technique. "Still, I have the choice of making top cuts, side cuts, and face cuts, depending on which way I want to feature the wood's figure in the box's intended shape."

▼ **Dark ends of amarillo add just enough accent to the box body made of burled white oak from Wisconsin.**

Jerry's boxes have elegantly simple lines. That, as he's said, makes the wood stand out. But simplicity also means that Jerry can make all his cuts with a ¼" blade. "I don't own anything finer, because I don't have to make tight circles and intricate cuts," he notes. "But I do always try to maintain balanced wall thicknesses in scale with the box's body mass."

Unlike many boxmakers, Jerry shuns flocking the insides of his items. You guessed why: He likes people to see the wood, not cover it up. You can also assume that that means extra sanding and finishing. Jerry doesn't mind. In fact, he's really set up for it.

▲The six-ply cotton buffing wheel on Jerry's bench grinder required a long custom spindle. For a high gloss on the finish, he charges the wheel with tripoli, a polishing compound, then follows with carnuaba wax.



▲A believer in preventive medicine, Jerry wears eye protection and a respirator when sawing or sanding.

▲ Made of burled maple, this S-section lift-out tray box sells for $95.

For the gently rounded surfaces inside his boxes and their drawers, the craftsman smooths the wood with assorted spindle sanders he chucks into his drill press. And because he doesn't like even tiny unfinished areas, he hand-sands in the grooves.

For exterior contours, Jerry relies on a Sand-Rite inflatable drum sanding machine that he's also equipped with a flap sander. "I'm trying to get the absolute smoothest surface possible for the finish," Jerry notes. "That adds to the wood's appeal." And for the finish, Jerry has a special blend.

"Now, this is a production finish, not a French polish," he explains, smiling broadly. "If I could, I'd love to put three coats on, but I can't spend that much time, I'd have to raise prices! So, I use as thick a coat as I can without leaving marks from the paper-towel application. What I've found that works the best is six parts Flecto's Varathane Gloss Clear Finish mixed with two parts of a gloss polymerizing tung oil [Gillespie's the brand], and about three-quarters of a part of mineral spirits. After applying it, I let it get tacky, then rub it down with a clean paper towel."

Jerry's finish mix gives the boxes the maximum possible gloss because he realizes that with wear the finish will dull to a more pleasing sheen. "And it does dull down," the craftsman says, his eyes twinkling. "My boxes become like the old 'worry stones.' People pick them up and handle them so much, I'm afraid someday they'll wear the finish right off!"

Got a question for Jerry?

Jerry's a craftsman willing to help. In fact, he's advised other woodworkers on how to get started. If you have a question on working unusual wood, or about bandsaw-box making, write him (please enclose a self-addressed, stamped envelope):

Jerry Patrasso,
660 North St.,
Boulder, CO 80304.

Written by Peter J. Stephano
Photographs: Tim Murphy/Foto Imagery

WOODWORKING'S

Professional woodworkers and carpenters long have used air-powered nailers and staplers with good reason. Nothing else gives you faster, more accurate, or cleaner results when assembling or clamping workpieces. And in the past couple of years, imported guns costing less than $150 have made this option affordable to most home woodworkers. Here's what you need to know to make a smart buy.

Around the *WOOD*® magazine shop, we use an air-powered brad nailer practically every day for chores such as attaching moldings, cleats, and cabinet backs, assembling craft projects, making jigs and fixtures, and fastening hard-to-clamp glued workpieces. With these guns, you can drive and countersink a fastener in the blink of an eye (try doing that with a hammer and nail set!).

In this article we'll concentrate on air-powered brad nailers since we feel most of you will get the greatest use from these tools. To give you a look at other options, we'll also examine air-powered staplers, as well as electric and cordless nailers and staplers.

Stapler or brad nailer: which one should you buy?

Although brads excel for most woodworking tasks, a stapler comes in handy for upholstery work, and some construction tasks such as installing insulation, sheathing, and lattice. In our tests we concentrated on guns that fire ¼"-wide narrow-crown staples. You can buy similar guns that fire ½"-wide crowns. The crown, or the portion of the staple that bridges its two points, provides holding power in thin materials.

But, the staple crown also leaves a large countersunk hole compared to a brad. This makes staples inappropriate for fastening visible surfaces such as moldings. As shown in the photo *right,* staples also have a greater tendency to split hardwoods.

Because staples have two points instead of the brad's one, they require twice as much driving force to reach the same depth. That's why the staplers in our test handle fasteners no longer than 1". To shoot longer staples you need to step up to large guns weighing about 6 pounds and costing upwards of $300.

Imports vs. domestics: points to keep in mind

The popularity of air-powered fastening machines has zoomed

Continued

AIR-POWERED BRAD NAILERS

AIRY
ATK-0241

JET
JDPN-607.2

JET
JDPN-6018.2

WOODTEK
832-371

Print this article

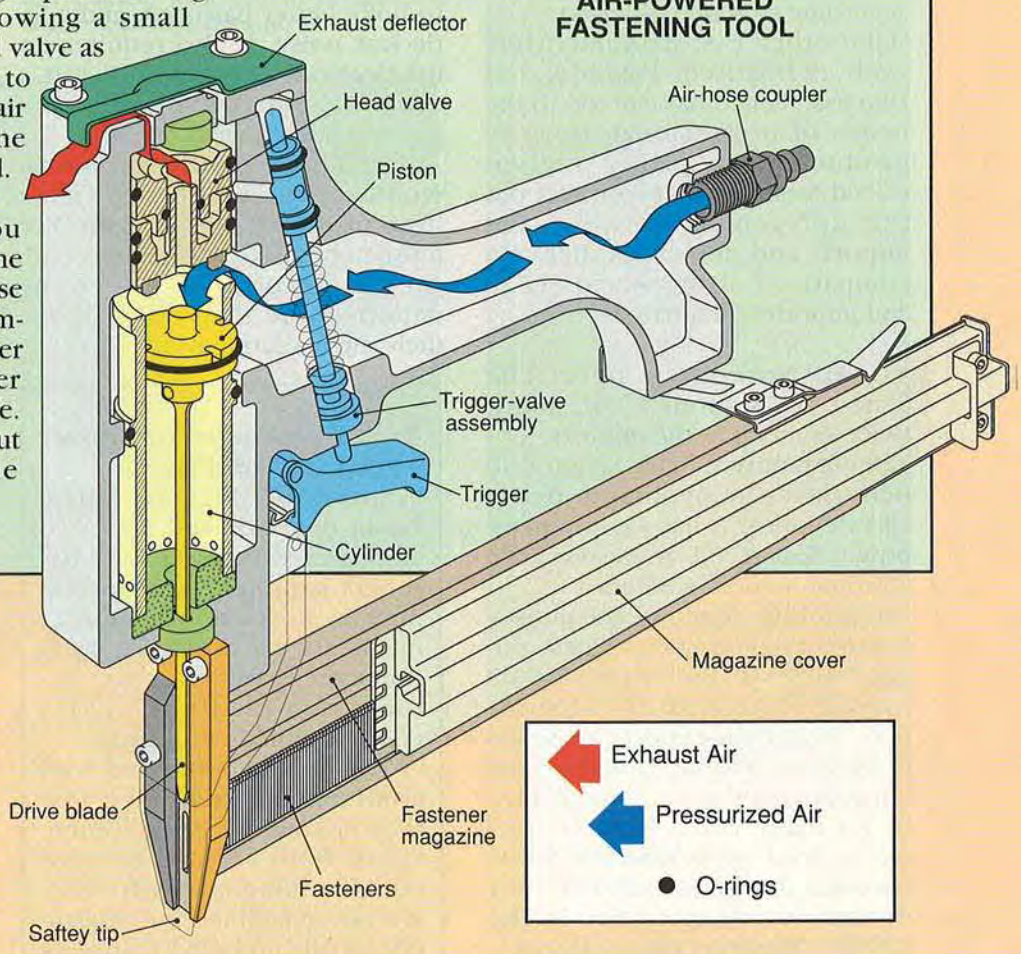
SURE SHOTS

Power brad nailers and staplers bring speed and convenience to your workshop

HOW AIR-POWERED FASTENING TOOLS WORK

When you squeeze the trigger of a pneumatic nailer or stapler, you set into motion a series of mechanical actions that take just a split second to complete. First, a rod connected to the trigger pushes a trigger-valve assembly upward, allowing a small amount of air to flow into the head valve as shown at right. This valve opens to let a larger volume of pressurized air rush into the cylinder, driving the piston and drive blade downward. The drive blade forces a fastener into your workpiece. When you release the trigger, air flows into the cylinder through holes near its base to drive the piston upward, completing its stroke. Then, the fastener magazine pushes another fastener into position under the drive blade. Finally, the exhaust air escapes out of the gun's top through the exhaust deflector.

ANATOMY OF AN AIR-POWERED FASTENING TOOL



Staples have greater holding power, but leave larger holes, and tend to split hardwoods more so than brads.

SEARS
18310

PENN STATE
ANK

SENCO
SLP20

GRIZZLY
G1861

among woodworkers in recent years, largely due to the advent of lower-priced, Taiwanese models. Although we focused our testing on these less-expensive units, we also included two similarly sized, U.S.-made, pneumatic machines: the Senco L stapler and the Senco SLP20 brad nailer (the world's top-selling air-powered tool according to Senco officials).

Like other U.S. manufacturers such as Bostitch, Paslode, and Duo-Fast, Senco has catered to the needs of professional users by producing top-quality, higher-priced tools. To help you sort out the differences between the imports and domestics, here's a comparison of the Senco SLP20 and imported bradnailers:

- **Cost.** No contest here. The Senco costs about $270, about twice as much as the imports.
- **Performance.** The Senco outperformed the imports in nearly all categories. It has slightly more power, less recoil, and leaves little marring on work surfaces.
- **Reliability:** None of the guns—imports or domestics—failed during our tests. But, based on its overall higher-quality construction, we would expect the Senco to be more reliable. However, the imports should last a home hobbyist for many years. For example, we've fired approximately 5,000 fasteners through a Grizzly G1861 during two years of use in the *WOOD* magazine shop without a single breakdown. If you do need to replace a part, or remove a jammed fastener, we found the Senco easier to disassemble and repair. The importers stock replacement parts, but you'll need to wait for them during the shipping period. Domestic manufacturers have extensive local-dealer networks.
- **Other points.** We found the Senco slightly more comfortable to hold, better balanced, and a little less noisy. It also requires no lubrication. (You should put a drop or two of oil into the imports before every use.)

All in all, we think professional woodworkers will benefit most from using a U.S.-made gun. For most hobbyists on a limited budget, the lower price tags of the imports more than make up for their slight shortcomings.

What you need to know about fasteners

You can use the same fasteners in domestic and imported air-powered guns, but the fasteners supplied by domestic makers cost about twice as much. So, we wondered if the domestic fasteners have features that justify the extra cost. We couldn't find any.

We measured both types with a micrometer and found that they shared the same dimensions. Both seemed to have equal holding strength. And, we never jammed a domestic gun with imported fasteners or vice versa.

Safety systems: four types to choose from

Each of the products in our test features one of four safety systems designed to prevent you from accidentally firing a fastener. (The chart on *pages 34-35* describes the system for each tested gun.) Each system has a different effect on a gun's safety level, handling comfort, and performance.

For example, the Penn State model ANK and Woodtek model 832-371 brad nailers shown at *right* are nearly identical, but they have different safety systems that affect their overall performance level. Like most air-powered nailers, the Penn State model has a safety tip that must contact a work surface before the gun fires. This system provides a good margin of safety, but the sharp point of the safety tip tends to mar the surfaces of softwood.

With the Woodtek unit, you need to depress two triggers. This system took some getting used to, and doesn't protect the operator as much as the safety tip, but has advantages of its own. The Woodtek gun created almost no marring, even in softwoods. And you easily can fire fasteners in tight or awkward quarters where the position of the gun may prevent you from fully depressing a safety tip.

The Sears and Arrow staplers (air, electric, and battery powered) have a manual safety lock that prevents you from squeezing the trigger, similar to the version shown *right top* on the Sears 18300 air

AIR-POWERED STAPLERS

AIRY ASP-0626

SEARS 18300

WOODTEK 832-364

SENCO L

GRIZZLY G1847

stapler. Like the safety on a firearm, these work as long as you remember to use them.

Overall, we rate the safety systems on the Jet, Penn State, Senco, and Sears 68425 as the safest because they require you to depress the trigger and safety tip.

Continued

▼ **The nearly identical Penn State ANK *(left)* and Woodtek 832-371 have different safety systems.**

▲ **The Sears 18300 air-powered stapler has a safety lock that works like the trigger lock on a firearm.**

ELECTRIC FASTENING MACHINES: INEXPENSIVE, BUT LACKING POWER

For $40 or less you can buy electric-powered nailers and staplers, but these machines have several limitations. Because their power does not compare to the brute force of air-powered tools, we found them inappropriate for use with hardwoods such as oak. They work fine in softwoods, as long as you hold the tool against the workpiece with considerable force. Otherwise, the tool recoils and the fastener does not sit flush or countersunk in the surface. All of the tested units marred the surface around the fastener.

ELECTRIC STAPLERS

Surface marring

The photo *below* shows you the marring effect of some of the brad nailers in our test. As you can see, none of them produce much marring in oak, but most of them damage the pine surface to some degree. In the chart on *page 35* we rate the surface marring of all the tested units. The Woodtek 832-371 came out on top of this test, with the Senco also producing excellent results.

Here's how the brad nailers compared in a marring test on oak *(left)* and pine: *(from top)* Sears 18310, Senco SLP20, Sears 68425, (electric), Grizzly G1861, Woodtek 832-371, and Penn State ANK.

Power and its effect on recoil

All of the air-powered tools in our test were able to drive their longest available fastener into pine. But, as you can see in the "power" column of the chart on *page 35*, the Sears and Grizzly air-powered staplers fell shy of driving their longest fasteners into oak.

When a powered fastening tool does not have sufficient power to drive a nail or staple, the tool recoils, meaning you feel some kickback. Most of the air-powered tools in our test produced little recoil in pine or oak.

SURE SHOTS

More points to consider:

• **Magazines.** Of all the tested units, we preferred the clear-plastic fastener magazines on the Airy, Woodtek, and Penn State brad nailers. Although not quite as durable as some of the metal magazines, the clear versions give you ample warning that you're running low on fasteners.

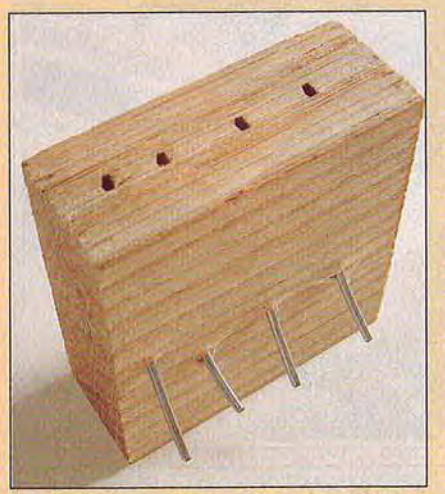
• **Jamming.** In all of our testing, we did not experience a single jammed fastener. But, if this should happen, and it probably will if you use a gun enough, some guns make removing the jam easier than others. The chart *right* rates the ease of clearing a jam (we forced the guns to jam to develop this rating).

• **Compressor requirements.** These guns require little compressed air compared to other pneumatic tools such as sanders. So, almost any compressor with an air-storage tank will do.

If you opt for a Taiwanese-made, air-powered tool, you need a compressor with an accurate regulator. We found that the o-rings on these tools blow out of position if you exceed the manufacturer's recommended maximum air pressure. And, none of the guns will work correctly if you don't have the required minimum pressure.

Drive carefully when handling these machines

Although nearly all of the hundreds of fasteners that we fired in our test followed a straight path when entering a wood surface, some occasionally veered off course due to the grain of the wood. For example, each of the fasteners in the photo *below* was fired straight into the workpiece, but each veered to the side and exited the wood. So, keep this possibility in mind when you hold two workpieces together for fastening, and keep your hands out of harms way.



The orientation of wood grain can cause brads to bend as they travel through a workpiece.

Cordless staplers: handy, but pricey

The battery-powered staplers in our tests performed about equally with the electric staplers discussed on the *previous page,* but were handier because you can use them almost anywhere. This convenience carries a stiff price however: $145 for the Arrow ETC-50K and $195 for the Makita T220DW.

CORDLESS STAPLERS

MAKITA
T220DW

ARROW
ETC-50K

Recommendations

We found most of the Taiwanese-made, air-powered tools to be good values and closely matched in overall performance. We give the Airy and Woodtek nailers and

	MANUFACTURER/ IMPORTER	MODEL	FASTENERS: LENGTH RANGE (INCHES)	FASTENERS: GAUGE
AIR- AND ELECTRIC-POWERED BRAD NAILERS	AIRY	ATK-0241	13/32-1 9/16	18
	GRIZZLY	G1861	3/8-1 9/16	18
	JET	JDPN-607.2	3/8-1 1/4	18
		JDPN-6018.2	9/16-1 5/8	18
	PENN STATE	ANK	13/32-1 9/16	18
	SEARS	68425	1-1 1/4	18
		18310	3/8-1 1/4	18
	SENCO	SLP20	5/8-1 5/8	18
	WOODTEK	832-371	13/32-1 9/16	18
AIR-POWERED STAPLERS	AIRY	ASP-0626	3/8-1	18
	GRIZZLY	G1847	1/2-7/8	18
	SEARS	18300	1/2-7/8	18
	SENCO	L	3/8-1	18
	WOODTEK	832-364	1/2-1	18
ELECTRIC- AND BATTERY-POWERED STAPLERS	ARROW	ETN-50	1/4-9/16	22
		ETC-50K	1/4-9/16	22
	MAKITA	T220DW	1/4-7/8	22
	SEARS	68481	1/4-9/16	22

NOTES:

1. (AIR) Pneumatic powered, with required pounds per square inch of air pressure
   (AC) 110-volt electric wall current
   (BAT.) Cordless units with listed voltage of battery cells
2. (A) Drives bottom of staple crown flush with work surface
   (B) Adjustable driver guide cover for settings from flush to about 1/8" countersunk
   (C) Only countersinks to about 1/8" unless you change air pressure to gun
   (D) Flush only; nail set and hammer required for countersinking

staplers a slight edge on the rest of the field because they produce little marring. Like the Penn State nailers, these similar models come with a carrying case, and a supply of fasteners, oil, wrenches, and spare parts.

If price doesn't matter to you, buy a Senco or other domestically produced fastening tool. The electric-powered Arrow and Sears tools priced under $50 offer excellent value for work in softwoods, in places where the fastener will not show.

MORE POWER TO YOU: A COMPARISON OF 18 FASTENING TOOLS

CROWN WIDTH (INCHES)	CAPACITY	POWER SOURCE (1)	COUNTERSINK DEPTH (2)	SAFETY SYSTEM (3)	CONSTRUCTION MATERIALS (4) BODY	CONSTRUCTION MATERIALS (4) MAGAZINE	WIDTH OF DRIVE BLADE (INCHES) (5)	PERFORMANCE EVALUATION (6) SURFACE MARRING (7)	RECOIL IN PINE (8)	RECOIL IN OAK (8)	EASE OF CLEARING A JAM (9)	POWER (8) (10) 2" OAK	POWER (8) (10) 2" PINE	OVERALL PERFORMANCE	OVERALL VALUE	SIZE (INCHES) LENGTH (11)	SIZE (INCHES) WIDTH	SIZE (INCHES) HEIGHT	WEIGHT (POUNDS)	STANDARD ACCESSORIES (12)	COUNTRY OF ORIGIN (13)	LIST PRICE	SELLING PRICE (14)
.081	100	AIR 55-95 PSI	B	B	A	P	.087	E	E	G	G	19/16	19/16	8	10	91/2	2	71/2	2.1	AF, CC, OI, PA, WR	T	$180	$135
.081	150	AIR 90 PSI	C	D	A	A	.124	F	E	E	F	19/16	19/16	7	9	123/16	23/8	87/8	3.5	AC, OI, WR	T	--	130
.081	100	AIR 50-90 PSI	C	C	A	A	.143	F	E	G	P	11/4	11/4	6	8	91/2	2	7	2.7	CC, OI, WR	T	165	123
.081	100	AIR 60-90 PSI	C	C	A	A	.143	F	E	G	P	15/8	15/8	7	8	91/2	2	8	3.1	CC, OI, WR	T	217	162
.081	100	AIR 80-100 PSI	B	C	A	P	.087	F	E	G	P	19/16	19/16	7	9	91/2	2	71/2	2.1	AF, CC, OI, PA, WR	T	--	130
.081	100	AC	D	C	P	S	.092	F	E	NR	G	NR	11/4	3	5	83/4	21/4	81/2	3.5	--	T	--	40
.081	100	AIR	B	D	A	S	.124	F	G	G	G	11/4	11/4	6	9	91/2	2	71/4	3.5	OI, WR	T	--	95
.081	110	AIR 70-120 PSI	C	C	A	P	.088	E	E	E	E	15/8	15/8	10	10	91/2	17/8	81/4	2.2	CC	U	422	270
.081	100	AIR 80-100 PSI	B	B	A	P	.087	E	E	G	G	19/16	19/16	8	10	91/2	2	71/2	2.1	AF, CC, OI, PA, WR	T	--	139
1/4	100	AIR 55-95 PSI	B	B	A	P	.236	E	E	E	E	1	1	8	9	9	2	71/4	2.1	AF, CC, OI, PA, WR	T	194	130
1/4	100	AIR 90 PSI	B	D	A	S	.220	G	E	P	G	1/2	7/8	6	8	91/2	2	7	2.5	AC, OI, WR	T	--	90
1/4	100	AIR 52-100 PSI	B	A	A	S	.220	E	E	P	G	1/2	7/8	6	8	91/2	2	7	2.1	AC, OI	T	--	95
1/4	240	AIR 80-120 PSI	C	C	A	S	.249	E	E	E	E	1	1	10	10	11 11/16 to *14 13/16	2	73/4	3.2	--	U	298	215
1/4	100	AIR 80-100 PSI	B	B	A	P	.236	E	E	E	E	1	1	8	10	9	2	71/4	2.1	AF, CC, OI, PA, WR	T	--	110
3/8	85	AC	A	A	P	S	*	F	G	NR	F	NR	1/2	5	9	71/2	21/4	61/2	2.1	--	U	36.25	25
3/8	85	BAT. 7.2 V	A	A	P	S	*	F	G	NR	F	NR	1/2	5	3	91/8	21/4	61/2	3.4	CC, CH	U	210	145
3/8	100	BAT. 9.6 V	B	D	P	P	*	F	G	NR	F	NR	7/8	9	8	103/4	2	67/8	4.3	CC, CH	J	352	195
1/2	85	AC	A	A	P	P	*	G	G	NR	F	NR	1/2	5	9	81/2	21/8	61/2	1.1	--	U	--	30

3. (A) Trigger firing with trigger safety lock disengaged.
   (B) You need to squeeze two triggers in sequence to fire gun.
   (C) You must place safety tip in contact with work surface, then depress trigger to fire each fastener.
   (D) Like 'C' except that you can fire the gun by simply holding the trigger down and touching the safety tip against the work surface.
4. (A) Aluminum (P) Plastic (S) Steel
5. (•) Staples are not countersunk, so width of drive blade not important.
6. E Excellent; G Good; F Fair; P Poor
7. Surface marring in pine; all tools were excellent in oak.
8. (NR) Not recommended for use in oak; 22-gauge fasteners tend to crumple when driven into oak.
9. Effort required to disassemble components that obstruct a jammed fastener.
10. Longest fastener that can be fired flush with work surface.
11. *Length varies depending on whether you extend the fastener magazine.
12. (AC) Air coupler
    (AF) Assorted fasteners
    (CC) Carrying case
    (CH) Battery charger
    (OI) Oil
    (PA) Piston/drive blade assembly
    (WR) Wrenches
13. (J) Japan (T) Taiwan (U) United States
14. Selling prices based on advertisements and catalogs of mass merchandisers at time of article's production.

MANUFACTURERS' LISTING:

Airy
310/926-6192

Arrow
201/843-6900

Grizzly
East of Mississippi River:
800/523-4777
West of Mississippi River:
800/541-5537

Jet
800/243-8538

Makita
714/522-8088

Penn State
800/288-7297

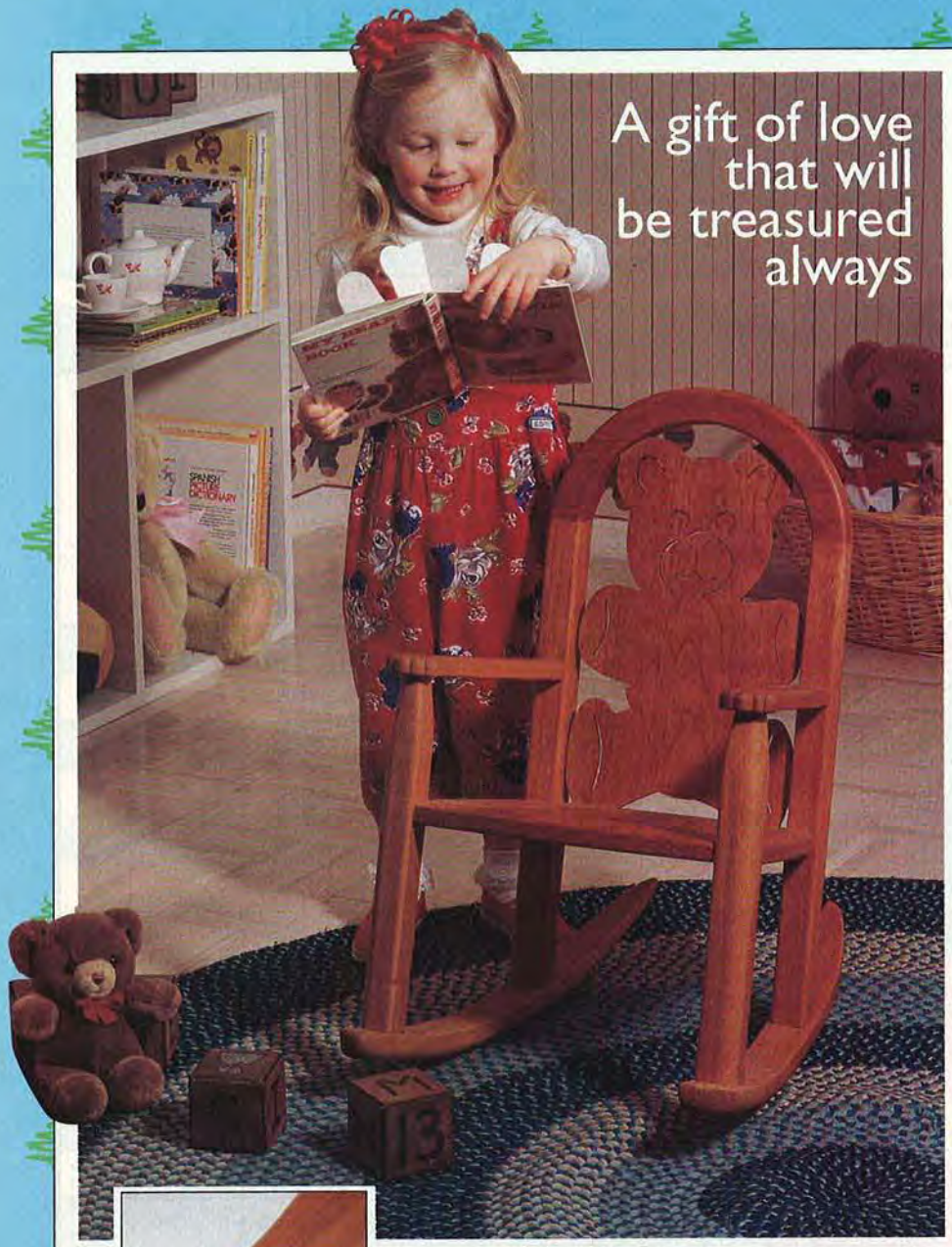
Sears
Call or visit your local Sears store

Senco
800/543-4596

Woodtek
800/645-9292

The one TEDDY

A gift of love that will be treasured always



Scrollsawed kerfs and round-overs accent the bear-paw armrests.

The children we've shown this little rocker to just can't resist it. We're not sure if it's the bear cutout in the backrest, the paw armrests, or the smooth rocking action that attracts them to it. But we do know this is one of the most usable pieces you'll ever have the opportunity to present to some lucky young recipient.

Print this article

NOTE: For your convenience, we'll supply you with full-sized patterns for the bear cutout (D), rocker (F), and armrest (G). Or, if you just can't wait to get started, enlarge the gridded patterns shown on page 38. *To receive the full-sized patterns, send $3 and a 10×13" self-addressed envelope with $1.25 postage to The Teddy Bear Chair,* WOOD *Magazine, 1912 Grand Ave., Des Moines, IA 50309-3379. (Foreign readers please include an international reply coupon.)*

Begin construction with the arch-topped backrest

1 From ¾" stock (we used cherry), cut one piece to 7×13" and a second piece to 7×10" for the backrest top rail (A). With the bottom edges flush and an even 1½" overhang on each end where shown on the Backrest drawing, glue and clamp the two pieces.

2 To form the backrest uprights (B), cut two pieces of ¾"-thick cherry to 1⅝×17½" and two pieces to 1⅝×25¼". With the bottom ends and edges flush, glue and clamp the pieces face-to-face.

3 Scrape the excess glue from one edge of each laminated upright (B), and joint or plane the scraped edge flat. Rip and then joint the opposite edge of each upright for a 1½" finished width.

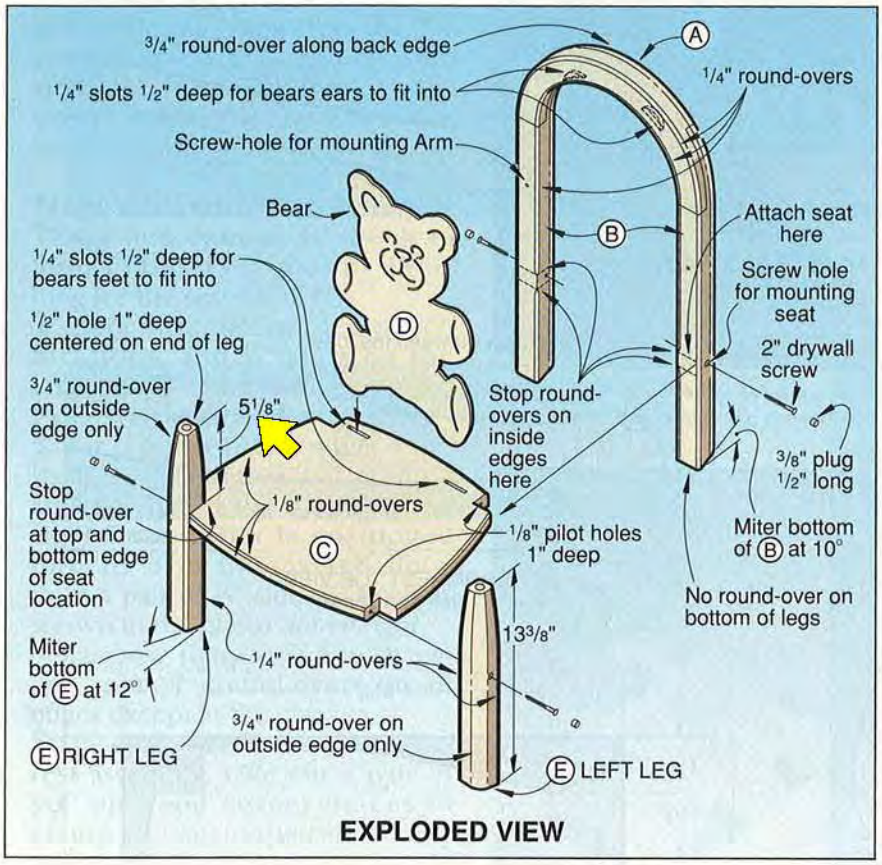
4 Miter-cut the bottom end of each laminated upright where shown on the Backrest drawing. Mark the centerpoints, and drill two counterbored mounting holes through each upright for the seat and two for the armrests.

5 Glue and clamp the uprights to the backrest top rail.

Text continues on page 39

A WOOD MAGAZINE F·A·M·I·L·Y HEIRLOOM PROJECT

and only BEAR CHAIR


3/4" round-over along back edge
1/4" slots 1/2" deep for bears ears to fit into
Screw-hole for mounting Arm
Bear
1/4" slots 1/2" deep for bears feet to fit into
1/2" hole 1" deep centered on end of leg
3/4" round-over on outside edge only
5 1/8"
Stop round-over at top and bottom edge of seat location
Miter bottom of E at 12°
E RIGHT LEG
1/4" round-overs
3/4" round-over on outside edge only
1/8" round-overs
1/8" pilot holes 1" deep
Stop round-overs on inside edges here
13 3/8"
E LEFT LEG
1/4" round-overs
Attach seat here
Screw hole for mounting seat
2" drywall screw
3/8" plug 1/2" long
Miter bottom of B at 10°
No round-over on bottom of legs
A
B
C
D
E

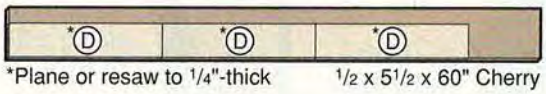
EXPLODED VIEW

Bill of Materials					
Part	Initial Size T	W	L	Matl.	Qty.
A backrest top rails	1½"	7"	13"	LC	1
B backrest uprights	1½"	1½"	25¼"	LC	2
C seat	¾"	15½"	13 9/16"	EC	1
D bear cutout	¼"	11"	17"	EC	1
E front legs	1½"	1½"	13⅜"	EC	2
F rockers	2¼"	4"	25"	LC	2
G armrests	¾"	3"	12"	C	2

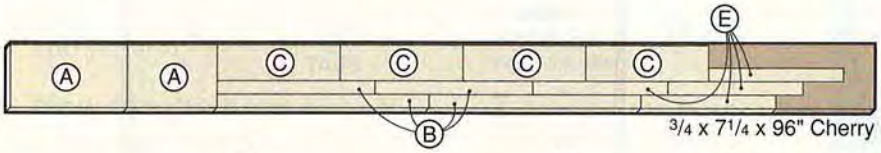
Materials Key: LC—laminated cherry (or 1½" solid stock), EC—edge-joined cherry

Supplies: 2" drywall screws, 1½" dowel stock, finish.

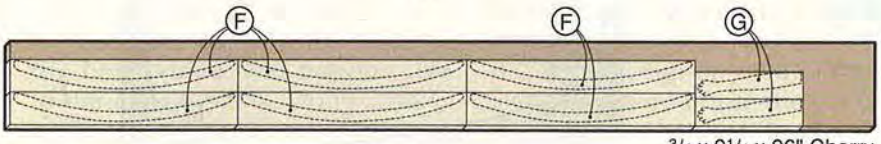
CUTTING DIAGRAM



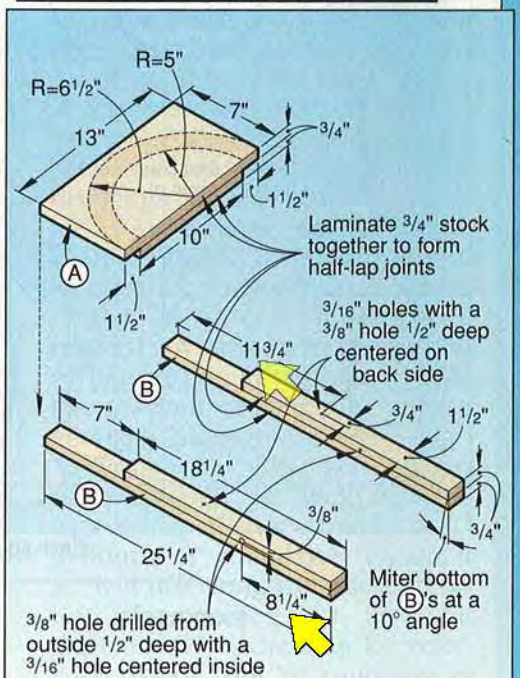
*Plane or resaw to 1/4"-thick — 1/2 x 5 1/2 x 60" Cherry



3/4 x 7 1/4 x 96" Cherry

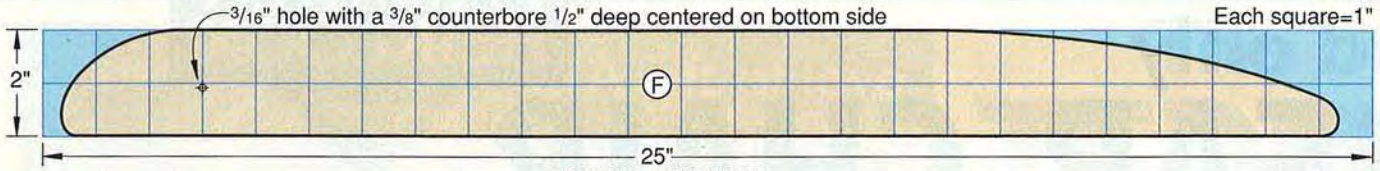


3/4 x 9 1/4 x 96" Cherry

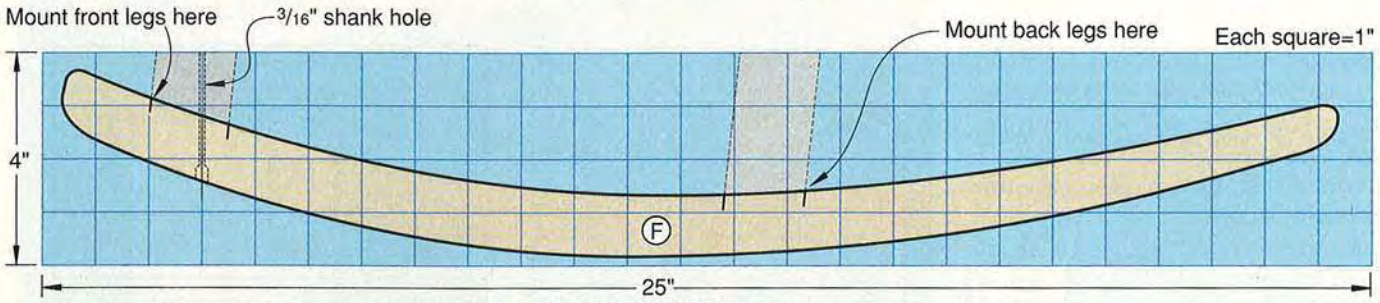


BACKREST

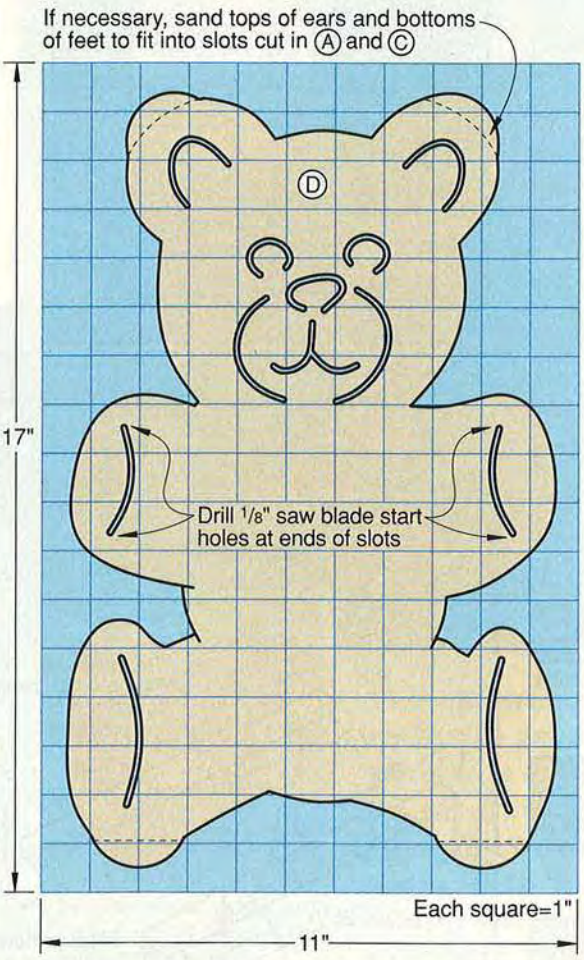
The TEDDY BEAR CHAIR



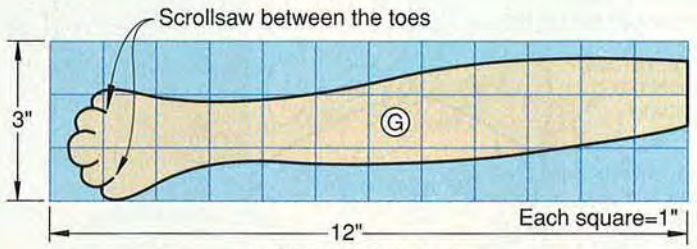
ROCKER TOP VIEW
(Top view for right rocker shown, make a mirror image for left rocker top view)



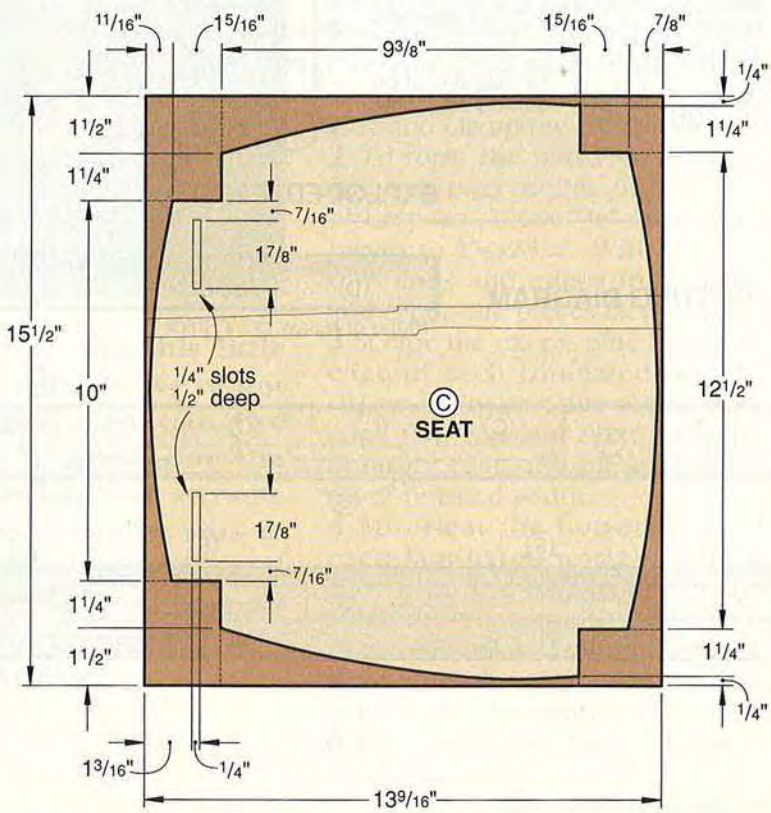
ROCKER SIDE VIEW


If necessary, sand tops of ears and bottoms of feet to fit into slots cut in A and C
D
17"
Drill 1/8" saw blade start holes at ends of slots
Each square=1"
11"

BACKREST



ARMREST TOP VIEW
(left arm shown)



PART VIEW

6 Using trammel points, mark a pair of arcs on the backrest top rail where shown on the Backrest drawing. Bandsaw and sand the top rail to shape.
7 Rout a ¾" round-over along the back outside edge of the backrest frame. If you don't have a ¾" round-over bit, a ½" will do. See the Exploded View drawing for reference. Rout ¼" round-overs along the remaining three edges, except where the seat will attach where shown on the drawing.

Now, construct the seat

1 Edge-join enough ¾" stock to form a blank 15½" wide by 13⁹⁄₁₆" long for the seat blank (C).
2 Mark the outline, leg notch locations, and ¼" slots on the chair blank, using the Seat on the Parts View drawing for reference.
3 Fit your router with a ¼" straight bit. Position and clamp a straightedge to the seat blank so the ¼" router bit is positioned directly over the marked slots. Rout a pair of ¼" slots ½" deep as shown in the photo *above right*.
4 Bandsaw the seat (C) to shape, and rout ⅛" round-overs on all edges except at the corners.
5 Dry-clamp the seat to the backrest assembly. (We cut a pair of 90° plywood corner braces to clamp the seat squarely to the uprights.) Using the previously drilled mounting holes in the uprights for reference, drill a pilot hole centered top to bottom into the seat notch. Drive drywall screws through the uprights and into the seat.

Now for the bear cutout

1 Edge-join enough ¼"-thick stock to form a panel measuring 11×17" for the bear cutout (D). Transfer the bear outline and interior cuts to the 11×17" blank. Drill ⅛" holes at the ends of each marked slot.
2 Using the ⅛" holes as blade-start holes, cut the decorative slots. Scrollsaw or bandsaw the bear's exterior outline to shape.

Rout a pair of ¼" slots ½" deep in the seat blank to house the bottom of the bear's feet. For photo clarity we moved the model's right hand away from the router.

Position the bear cutout on the assembled backrest, and mark the slot locations as shown.

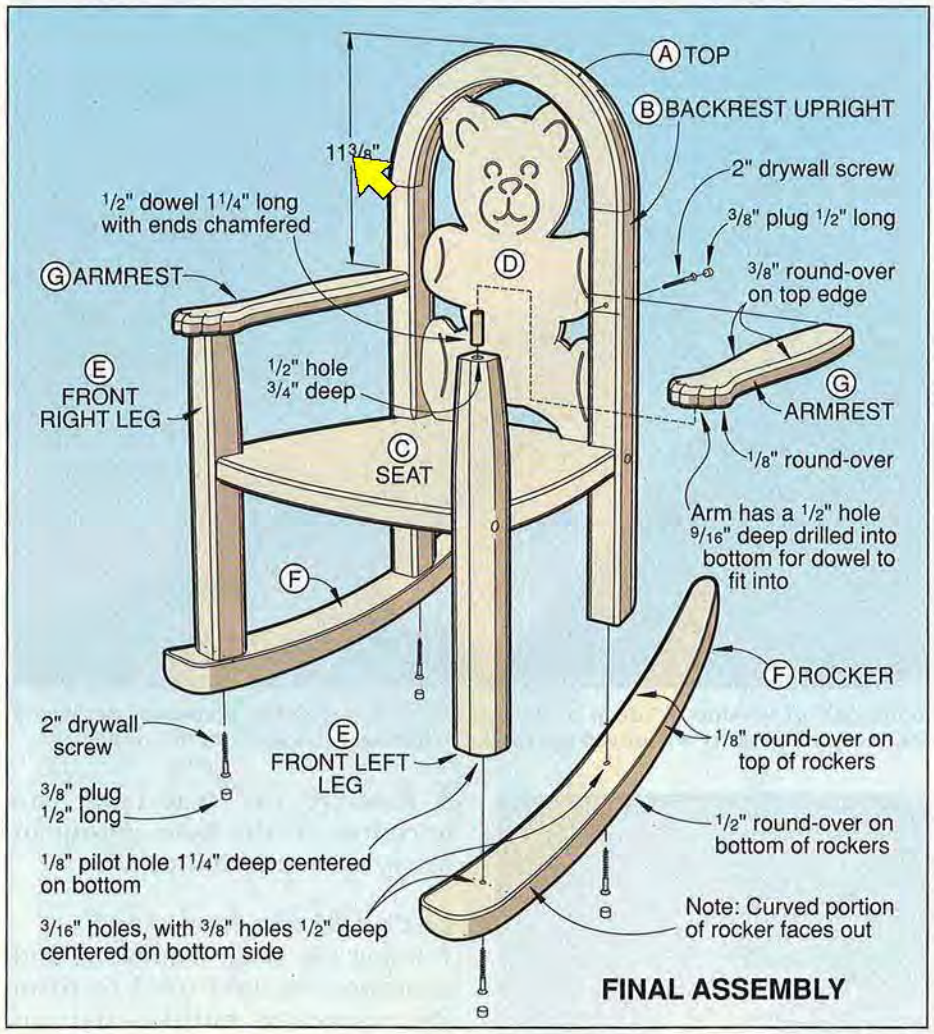
3 Position the bear cutout on the backrest assembly where shown in the photo *above*. Mark the start and stop marks on the front face of the backrest top rail (A) for the slots needed to house the ear tabs.
4 Using your router fitted with a ¼" slotting-cutter, rout two ½"-deep slots, centered from face-to-face, between the start and stop marks on the backrest top rail.
5 Remove the seat from the uprights, fit the bear cutout in place, and reattach the seat.

Let's add the front legs

1 Using the same laminating and trimming method used to form the uprights, build a pair of 1½×1½×14" front leg blanks (E).
2 Miter-cut the bottom ends of the front legs where shown on the Exploded View and Front Leg drawings. Crosscut the top ends for a 13⅜" finished length.
3 Draw diagonals on the top end of each leg to find center. Then, drill a ½" hole 1" deep where marked. (We used a brad-point bit to center the hole directly over the marked centerpoint and to eliminate bit wander.)
4 Transfer the full-sized leg top patterns to the leg blanks. Cut the legs to shape and sand smooth.
5 Rout a ¾" round-over (again, a ½" will do) along the outside corner of each leg (E). See the Exploded View drawing for reference. Next, rout ¼" round-overs along the other three edges except on the inside edge where the seat will attach later.

Continued

The TEDDY BEAR CHAIR

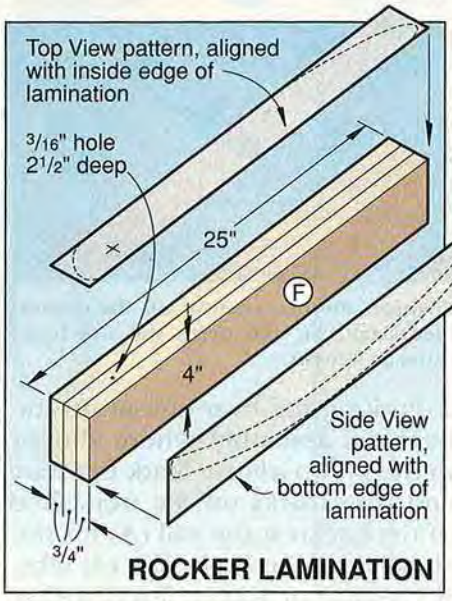

A TOP
B BACKREST UPRIGHT
11 3/8"
2" drywall screw
1/2" dowel 1 1/4" long with ends chamfered
3/8" plug 1/2" long
G ARMREST
D
3/8" round-over on top edge
E FRONT RIGHT LEG
1/2" hole 3/4" deep
G ARMREST
C SEAT
1/8" round-over
Arm has a 1/2" hole 9/16" deep drilled into bottom for dowel to fit into
F
F ROCKER
2" drywall screw
E FRONT LEFT LEG
1/8" round-over on top of rockers
3/8" plug 1/2" long
1/2" round-over on bottom of rockers
1/8" pilot hole 1 1/4" deep centered on bottom
Note: Curved portion of rocker faces out
3/16" holes, with 3/8" holes 1/2" deep centered on bottom side
FINAL ASSEMBLY

Laminate and cut the rockers to shape

1 Cut six pieces of ¾"-thick stock to the sizes shown on the Rocker Lamination drawing for the two rocker blanks (F). Glue and clamp the two laminations (three boards each) together, with the edges and ends flush.

2 Joint or plane the top edge flat. Transfer the full-sized patterns (top and side) to each lamination. Note that you'll need a right and left top view pattern. Check that the patterns align with each other. Also, note that the inside edge of each rocker is straight while the outside edge is curved.

3 Working from the top surface of the rocker blank, drill a 3/16" shank hole 2½" deep into each blank where marked. (We'll drill the rear hole in each rocker later.)



4 To bandsaw the rockers to shape, cut the top pattern to shape first. Using double-faced tape, adhere the back piece of scrap cut from each rocker back end to its original position. (Taped back in place, the scrap keeps the blank from rocking when cutting the side view pattern. Now, bandsaw the side profile of each rocker to shape. Remove the taped-on scrap parts, and sand the rockers smooth. Rout ½" round-overs on the bottom edges of each rocker and sand ⅛ round-overs along the top.

Fasten the front legs and rockers

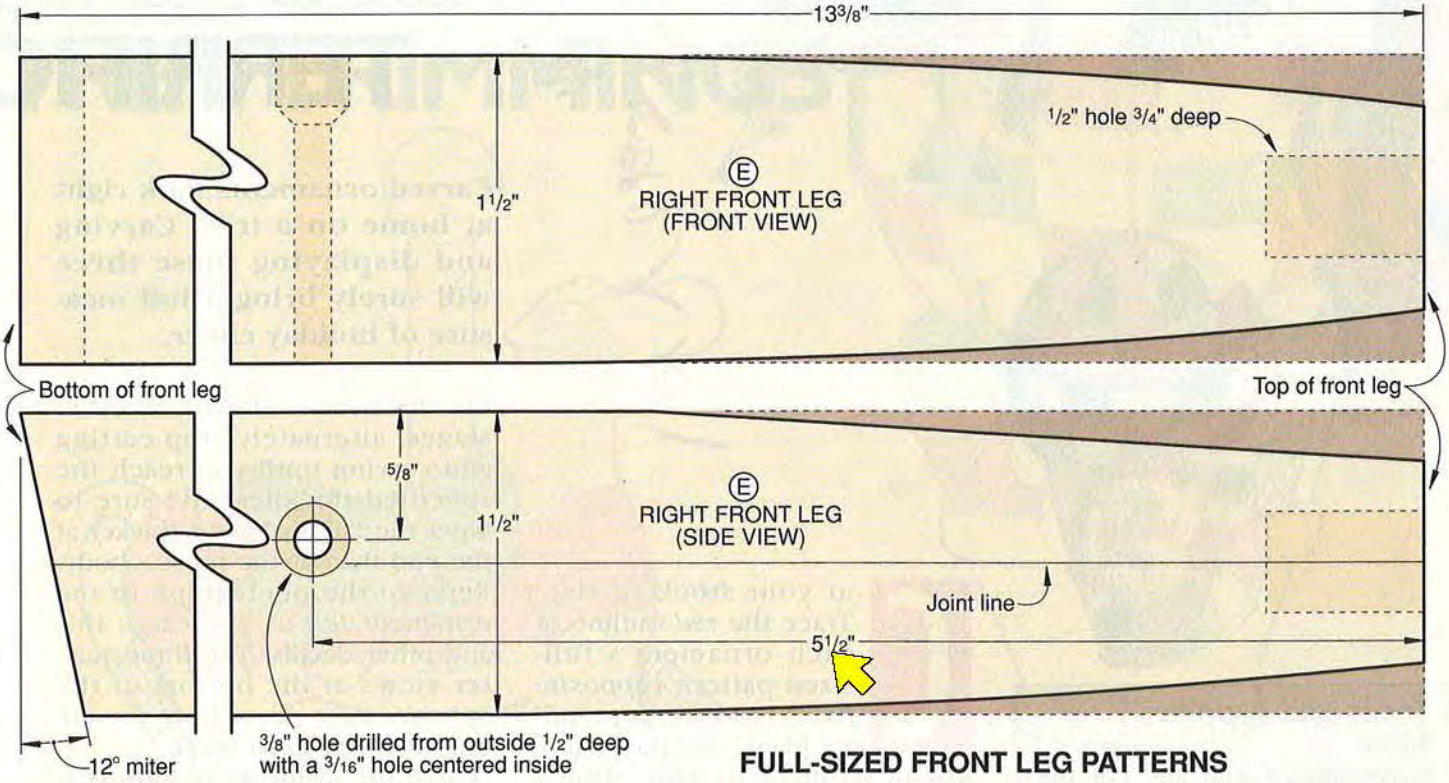
1 To join the front legs squarely to the the seat, cut a plywood spacer 13⅝×15⅝". Cut notches in the corners to match those in the seat. Cut the spacer in two, and tape the pieces back together with duct tape. See the photo *below right* for reference. The tape acts as a temporary hinge when positioning the spacer. If you leave the spacer as one solid piece, you can't remove it once the rockers have been attached.

2 Secure the spacer between the uprights and front legs with a bandclamp as shown in the photo *at right*. To clamp the rockers securely to the uprights, cut two small corner blocks. Clamp the rockers to the seat/uprights as shown in the photo.

3 Using the previously drilled 3/16" shank hole in each rocker as a guide, drill a ⅜" counterbore ½" deep into the bottom side of each rocker. Fasten the rockers to the front legs with drywall screws.

4 Mark the centerpoints on the bottom edge of the rockers to screw them to the uprights. Drill ⅛" pilot holes 1½" deep into the bottom end of each upright as shown in the photo. Drill ⅜" plug holes into the rockers, centered over the pilot holes. Finally enlarge the pilot hole in the rockers to 3/16". Drive the screws.

5 Plug the ⅜" holes in the bottom of the rockers with extra-long plugs. Sand the plugs flush.



FULL-SIZED FRONT LEG PATTERNS

Add the bear-paw armrests and then the finish

1 Cut two pieces of ¾"-thick stock to 3" wide by 12" long for the armrest blanks (G). Stick the armrest blanks together face-to-face with double-faced tape.

2 Transfer the full-sized armrest pattern to the top piece.

3 Bandsaw the taped-together armrests to shape. Separate the pieces and remove the tape.

4 Rout ⅜" round-overs along the top edges of the armrests. To accent the paws on the armrests, scrollsaw between the toes. Sand slight round-overs on the areas around the toes where shown in the inset photo on *page 36*.

5 Insert a ½" dowel center into the ½" hole in the top end of a front leg. Hold an armrest in position so the back end of the armrest is flush with the front surface of the backrest. Push down to transfer the dowel hole centerpoint to the bottom of the armrest. Repeat for the other armrest.

6 Drill a ½" hole 9/16" deep into the bottom surface of each armrest where indented.

7 Cut two ½" dowels to 1¼" long. Sand a chamfer on each end of each dowel. Glue and dowel the armrest fronts to the front legs, and use drywall screws to fasten the back end of the armrests to the uprights. Plug the holes.

8 Sand the rocking chair. Stain and finished as desired (we used Watco Natural Danish Oil).

Position and clamp the rockers to the chair assembly. Mark the centerpoints, and drill pilot holes through the rockers and into the bottom of the uprights and legs.

Produced by Marlen Kemmet
Project Design: Judith Ames, Seattle, Wash.
Photographs: John Hetherington
Illustrations: Kim Downing

Have fun carving TERRIFIC

Carved ornaments look right at home on a tree. Carving and displaying these three will surely bring a full measure of holiday cheer.

Print this article

Tools and supplies

Stock

Basswood or jelutong. For the balloon, ½×3½×5"; for the carousel horse, ½×4×5"; for the gnome Santa, ½×3×5".

Gouges

No. 3, ½", 1" fishtail
No. 8, ¼"
No. 9, ¼"
No. 11, ⅛", ¼"

V-Tools

60°, ¼" or 5/16"

Knives

Bench knife
Detail knife

Finishing supplies

Acrylic artist's colors. For the paint schemes shown, use these or similar colors. (The two-letter codes denote the colors on the photographs.) Ceramcoat by Delta: black, white, bright red, ultra blue, medium flesh, antique white (AW), iridescent white (IW), cadet gray (CG), burnt sienna (BS), pigskin (PS), antique gold (AG), Christmas green (GR). DecoArt: glorious gold (GG), crystal green (GN).

Wood sealer, linseed oil or antiquing stain, semigloss spray lacquer, brushes.

Cut your stock to size. Trace the *red* outline of each ornament's full-sized pattern (*opposite page*) onto the appropriate blank, and then bandsaw or scrollsaw to shape. Drill a ⅛" hanging hole where shown.

Draw the *green* pattern lines onto the carousel horse and balloon blanks (disregard this and other references to *green* lines if you're starting with roughouts.) Copy the *black* lines showing the major details onto each blank or roughout, but don't attempt to draw in fine details yet. In fact, to keep the patterns uncluttered, we haven't shown many of the fine details on them. Study the photographs for the details not illustrated. Now, you're ready to carve. Here's how to proceed with each ornament.

A colorful holiday horse

To rough out the horse from the sawed blank, stop-cut the *green* lines with a knife or V-tool. (*A stop cut,* an incision along a pattern line, enables you to carve up to the pattern line without chipping out the wood beyond it.) Keeping the knife blade (or the vertical side of the V-tool) perpendicular to the surface, cut about ⅛" deep to start.

Carve the crosshatched legs, tail, pole, and the ball atop the pole to the thicknesses shown. Work in stages, alternately stop-cutting and carving until you reach the specified thickness. Be sure to taper the tail, making it thicker at the end than at the horse's body. Refer to the photograph of the ornament *left* as you carve this and other details. The three-quarter views at the bottom of the *opposite page* show how the different carved levels meet.

Carve the major detail lines (the *black* lines) about 1/16" deep with a V-tool. Hold the V straight up for these cuts. Once you have established the major details, round over the top edges to begin shaping the horse. A knife or shallow gouge, such as a no. 3, will work fine for rounding the edges.

As you carve, extend the detail lines around and onto the edges. Draw them first, and then carve them with the V-tool. Blend the back of the head and mane into the neck, but let the ear extend straight back from the head.

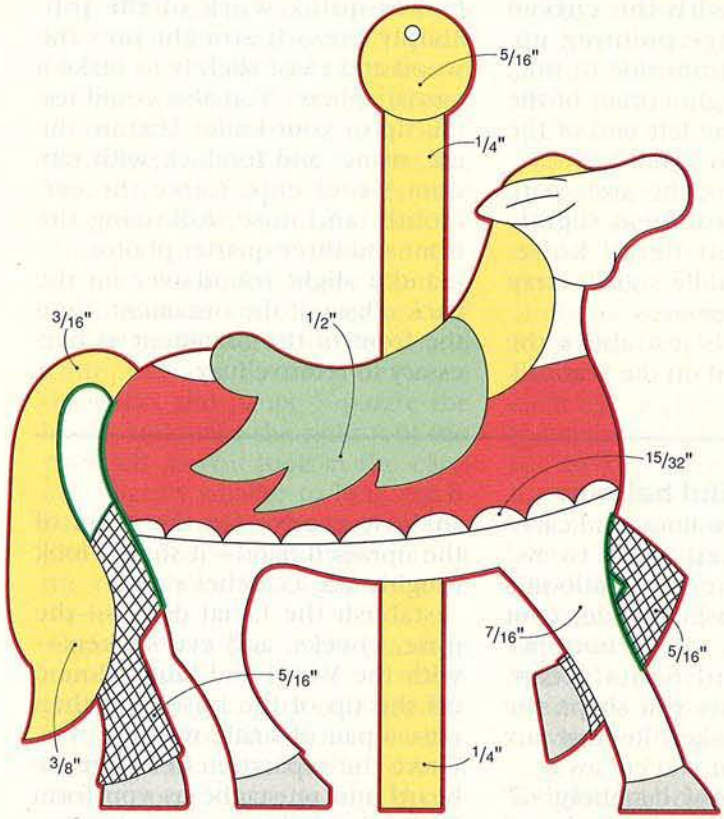
On the saddle, the rolled portion at the back of the seat extends straight across the top edge. With the tip of your knife, carve out the area between the tail and the back of the horse's body.

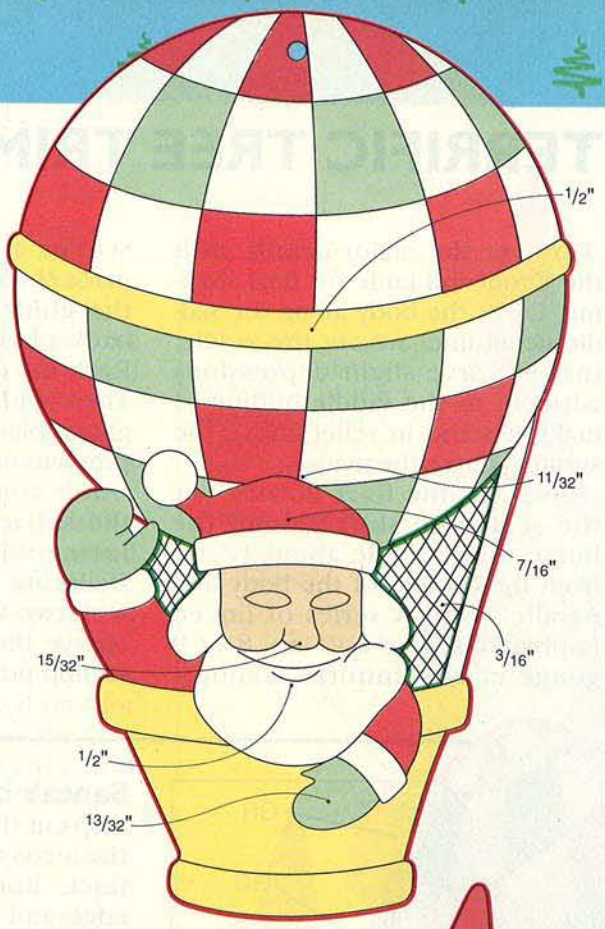
Lay out angled lines representing the spiral pattern on the rounded pole. Space them about 1/16" apart, slanting about 45° upward from the back of the pole toward the front. Then, starting from the center of the pole, make a V-tool cut around onto the edge on each line. Turn the ornament, and cut to the other edge.

Text continues on page 44

these heirloom ornaments

TREE TRIMMINGS





Separate the elaborate trappings from the horse's body by carving them in relief. The three-quarter front view shows details of the face and the front legs. Note in the rear view that the tail becomes both wider and thicker at the end.

TERRIFIC TREE TRIMMINGS

Go over the major details with the V-tool and knife for final shaping. Carve the body along the saddle detail line. *Set out* the saddle; that is, carve slight depressions adjacent to the saddle outline to make it stand in relief above the surface. Carve the mane.

Now, add the finer details. For the scalloped skirt around the horse, draw a line about ¼" up from the bottom of the body and parallel to it. A series of linked impressions from a ¼" no. 8 or 9 gouge makes uniform scallops. Starting at the front of the horse, place the corners of the blade on the guideline, with the curved back of the gouge pointing up. Rock the gouge from side to side. Then, with the right corner of the gouge blade at the left end of the previous arc, do it again.

After completing the arcs, pare the surface below them slightly lower with your detail knife. Delineate the saddle's girth strap with two V-tool grooves.

Carve the jewels just above the scallop points and on the seat roll. A ⅛"-diameter eye punch, available from carving-supply dealers, makes quick work of the job. Simply press it straight into the wood and twist slightly to make a partial sphere. You also could use the tip of your knife. Texture the tail, mane, and forelock with random V-tool cuts. Carve the ear, mouth, and nose, following the front and three-quarter photos.

Sand a slight round-over on the back edges of the ornament. Sand the front of the ornament as necessary to remove fuzz.

Diagonal V-tool cuts about 1/16" apart lend realism to the heavy rope around the balloon. Undercut the bottom of the balloon basket slightly, sloping it from front to back for perspective.

Santa's beautiful balloon

Stop-cut the *green* lines, and carve the crosshatched areas to 3/16" thick. Round over the balloon's edge and the basket's sides (but not the basket's top or bottom). Stop-cut around Santa's cap, beard, and arm as you shape the balloon and basket. Redraw any detail lines that you cut away.

With the V-tool, cut about 1/16" deep along the checkerboard detail lines on the balloon, creating the panels. Then, carve a half-round profile between the parallel lines around the balloon to simulate a rope. (An upside-down gouge does the trick.) To heighten the effect, cut evenly spaced diagonal lines across the rope with a V-tool.

Set out the rope, and smooth the balloon surface with a gouge and knife. With shallow V-tool cuts, clean up the lines between the panels.

Shape Santa's head with a detail knife. Rough in the rectangular area for his face. Carve his cap and beard, creating sharp separations between them and the balloon and basket.

Round Santa's arms, and form his mittens and fur cuffs. The mittens can be almost circular, with just a hint of a thumb on the hand on the front of the basket. Carve a shallow groove for the palm of the upraised hand—it should look roughly like a catcher's mitt.

Establish the facial details—the nose, cheeks, and eye sockets—with the V-tool and knife. Round off the tip of the nose, and then raise a pair of small ovals for eyes. Carve the separation between the beard and mustache as you form Santa's lower lip.

Texture Santa's hair, beard, and the fur trim on his clothing with V-tool cuts. Short, curved, random cuts will look better than long, straight ones.

Carve rolled rims at the top and bottom of the basket, and detail them with closely spaced diagonal V-tool cuts. Carve the body of the basket slightly lower than the rims, and then detail it with a basketweave pattern. Start with horizontal V-tool cuts parallel to the top of the basket. Then carve the vertical lines. Take shallow cuts to minimize breaking off the small pieces that create the texture.

Undercut the bottom of the basket slightly. Carve a shallow V-tool groove parallel to the right edge between the balloon and basket to delineate the rope connecting the basket to the balloon. Detail Santa's sleeves and cap with shallow cuts to form folds and wrinkles. Sand the ornament lightly.

Gnome Santa

Incise the detail lines with the V-tool. With gouges and your bench knife, round over the edges of the blank. Carry the detail lines on around the edges, either carving them with the V-tool or penciling them in to carve later. Set out the arm, cap, coat bottom, legs, and boots using the V-tool and knife.

Rough out the basket on the gnome's back, and shape the bag at his side as you carve the coat and left arm. With the V-tool and knife, carve a division between the boots and pants. Separate the boots, and make the right foot (on your left as you look at the carving) slightly smaller to help establish perspective. Notice in the photographs, too, that the sole of the right boot isn't aligned with the left one.

Carve the package in the gnome's hands, using the knife or no. 3 gouge. Slope the top of the package upward and back from the corner marked A on the pattern illustration. Notice in the three-quarter photographs that the front of the package slopes in (becomes thinner) from that point both vertically and horizontally.

As you carve the package, rough in mitten shapes for the hands. To add a ribbon to the package, outline it with shallow V-tool cuts, then set it out slightly.

Next, divide the fingers. Only four fingers of the right hand will show on the carving, but four fingers and the thumb will show on the gnome's left hand.

Carve a slight break between the left hand and the sleeve to create a cuff. Then, refer to the three-quarter view photo as you shape the trumpet, ball, and box in the basket using the gouges and knife.

Project Design: © Joe and Kay Wannamaker

Form the eyebrow line and the bridge of the nose as you hollow the eye locations with a no. 11 gouge. Round the cheeks and blend them into the eye sites, noting that the right side of the face (on your left) runs off the edge of the ornament.

Carve slight hollows on the sides of the nose to create a rounded end. Make a shallow knife cut alongside the nose to separate it from the cheek. With the V-tool, carve a small football shape at each eye socket (a partial one for the right eye). Cut across the center to separate the upper and lower eyelids, and then blend the eyes into the face.

Set out the ear, and then detail the hair, mustache, and beard with random V-tool cuts. Carve the lower lip as you complete the beard. Detail the basket as you did the balloon basket. Inspect the carving, and sand.

Bright holiday colors

Before painting, coat the ornaments with an undercoat or sealer. (Clear spray-on lacquer or thinned acrylic gesso work fine.) Paint with acrylic artist's colors thinned slightly with water. Follow the color scheme shown in the photographs, or paint the ornaments in your own style. Apply the paint in thin coats to preserve carved details.

To antique the ornaments, wipe on Danish oil finish or walnut stain. Wipe off the excess immediately. Let the ornaments dry, then spray on semigloss lacquer or polyurethane finish. Tie a loop of gold cord through the hole on each, and hang the trio on your tree.

Photographs: John Hetherington

The face stops abruptly at the left edge of the carving. From a three-quarter left view, you see the face almost head-on.
CG
GR
GG
UNPAINTED
BS
Three-quarter right side view shows the face in profile. The basket top rim curves 90° to the back in the vicinity of the blue stripe on the ball.
AG
AW

Buying Guide

Roughouts. Set of three roughouts with gold elastic string, $15 ppd. in U.S. J&K Wannamaker, 324 Big Arch Road, Godfrey, IL 62035, 618/466-8640.

IT'S THE PERFECT GIFT

ONE SWEETHEART

You'll surely win your loved one's affection with this unique gift. The lid and trays rotate open to display fine earrings, rings, and necklaces, and they swivel closed, making an eye-pleasing dresser-top showpiece. If you don't get it built by Christmas, keep in mind that the heart-topped container works great for birthdays and Valentines Day, too.

Marking the base, trays, and top layouts

1 From 1 1/16"-thick cherry, cut a 7"-square piece for the base (A), two pieces to 5 1/2" square for the trays (B), and one piece of 3/4"-thick bird's-eye maple to 5 1/2" square for the lid (C).

2 Mark centerlines on the *bottom surface* of the four blanks where shown on the Parts View drawing. Then, using a combination square, mark 45° reference lines on the bottom surface of the two trays and lid blanks.

3 Using a compass, mark a 3 1/4"-radius and 2"-radius circle on the base blank. See the Parts View for reference. Mark 2"-radius and 2 1/2"-radius circles on the tray blanks (B). Mark a 2 1/2"-radius circle on the maple lid blank (C).

4 Mark the centerpoints, and drill the pivot holes where shown on the Parts View drawing. For the base pivot hole, drill a 5/8" hole 1/4" deep on the bottom side first. Then, drill a 1/4" hole centered inside the 5/8" hole.

Cutting and sanding the pieces to shape

1 Fit your bandsaw with a 1/4" blade. (See the previous bandsaw-blade article for reference.) Following the centerline marked parallel with the grain, bandsaw the base and trays in half.

2 Bandsaw the inner marked circle on the tray and base pieces to cut the interiors to shape.

3 Spread glue on the kerfed areas, and glue the tray and base halves back together, with the top and bottom edges flush.

4 Cutting just outside the outermost marked circle, bandsaw the base, two trays, and lid to shape. Later, sand the outside edge of the base to the marked circumference lines to finish the shaping.

5 Using your largest diameter drum sander, sand the inside of the base and trays, sanding to the inner marked circle.

6 To make the bottom (D) for the base (A), position the base on a piece of 1/4"-thick stock (we used plywood). Marking along the inside of the base wall, transfer the shape to the 1/4" stock. Cut and sand the base bottom (D) until it fits snugly inside the base and the bottom edges are flush. Glue the bottom in place. Repeat the process for the two trays.

7 Mark the stop-dowel centerpoints on the bottom side of the trays and lid. Drill the holes.

It's time for final machining

1 Cut the pivot dowel to 3 15/16" long. Dry-fit (no glue) one end of the dowel into the hole on the bottom side of the lid. Sand the rest of the dowel until the trays rotate easily on it.

2 To sand the edges of the trays and lid flush, use double-faced (carpet) tape to adhere the trays and lid one on top of the other with the outside edges flush and the pivot pin inserted through the pivot pin holes in the trays and into the 1/4"-deep hole in the lid.

3 With the assembly upside down and resting on the lid, disc sand the outside edges of the pieces flush. Switch to a palm sander, and sand away any sanding marks left by the disc sander.

4 Use a splash of lacquer thinner or acetone to weaken the double-faced tape joints. Now, separate the parts, and remove the tape and any sticky residue.

5 Cut a V-block router-table fence like that shown in the photo on *page 48*. The fence provides support when routing the base and lid coves and helps keep your fingers safely away from the spinning router bit. Rout a 3/8" cove along

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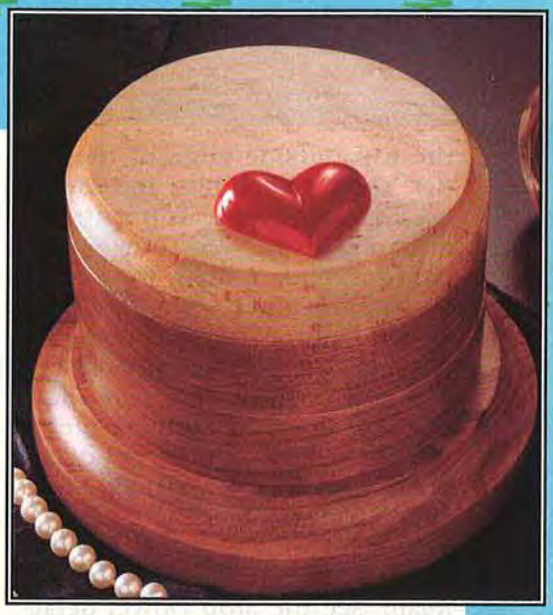
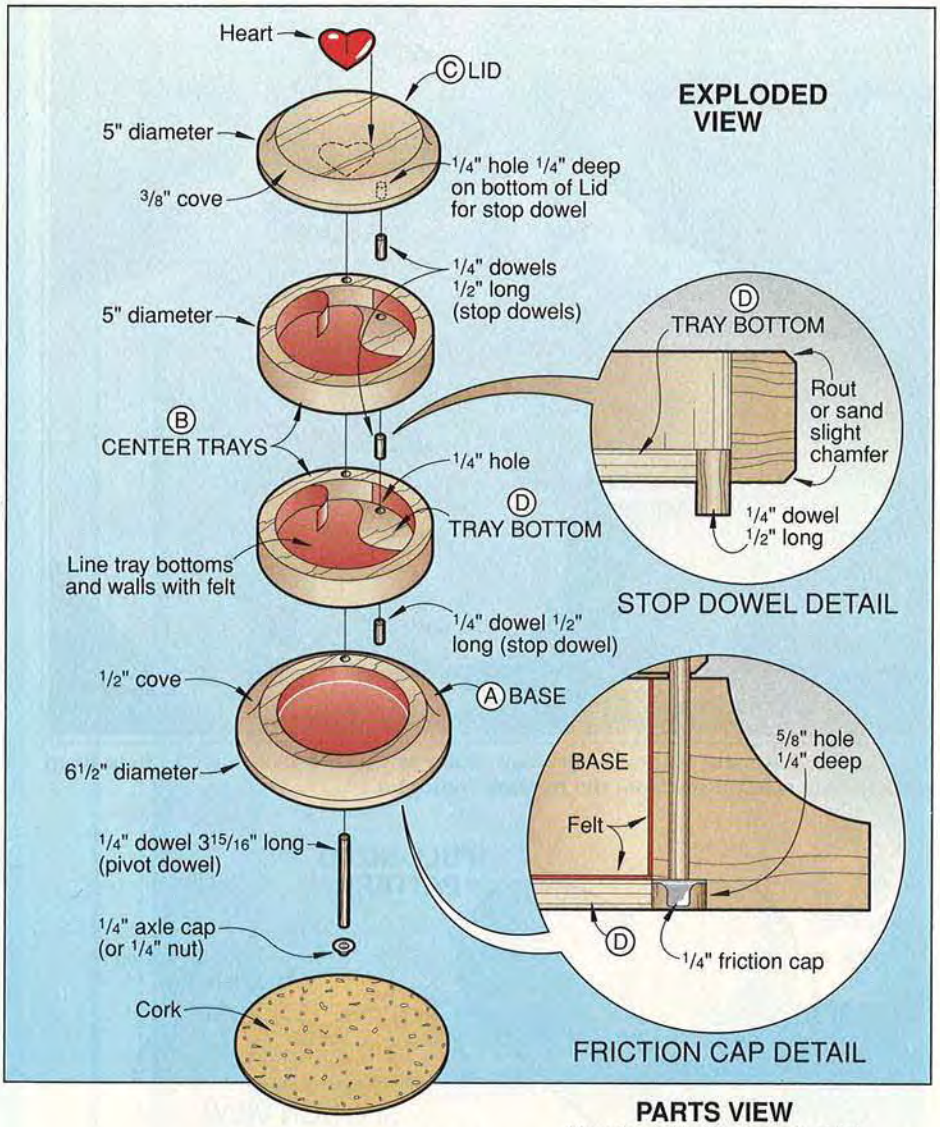
OF A JEWELRY BOX



Chiseled and sanded smooth, the painted wood heart adds an element of romance to this trayed jewelry box.



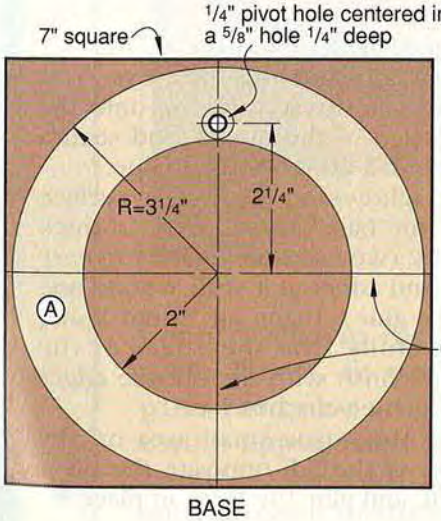
Bill of Materials					
Part	Finished Size			Matl.	Qty.
	T	W	L		
A* base	1 1/16"	6 1/2" dia.		C	1
B* trays	1 1/16"	5 1/2" dia.		C	2
C* lid	3/4"	5" dia.		BM	1
D bottoms	1/4"	4" dia.		P	3

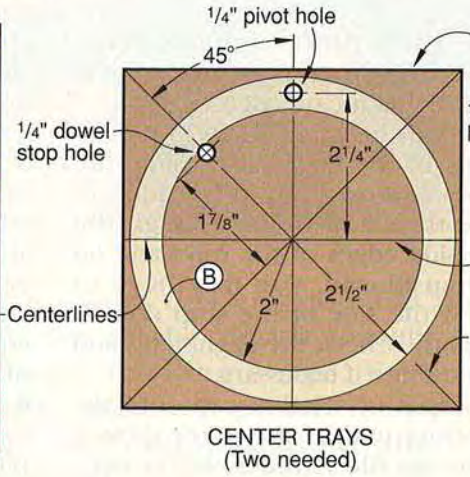
*Initially cut parts oversized. Then, trim each to finish size according to the how-to instructions.

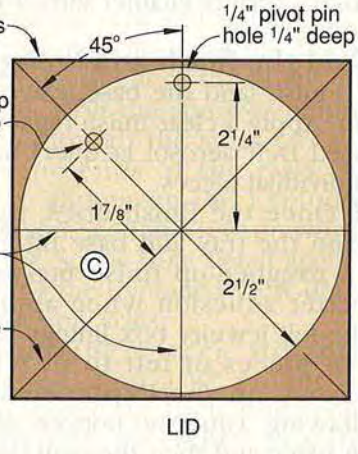
Materials Key: C–Cherry, BM–bird's-eye maple, P–Plywood

Supplies: 1/4" friction cap or 1/4" nut, 1/4" dowel stock, red enamel paint, clear finish, cork.

PARTS VIEW
(As viewed from bottom side)







the top outside edge of the lid (C). Then, switch bits, and rout a ½" cove along the top outside edge of the base (A). To minimize chip-out when routing the coves, we did it in three passes, increasing the depth of cut each pass.)

6 Sand a 1/32" chamfer along the top and bottom edges of each tray, and along the bottom edge of the lid. See the Stop Dowel detail accompanying the Exploded View drawing for reference.

7 From ¼" dowel stock, cut the three stop dowels to ½" long. Again, see the Stop Dowel detail for reference. Glue the stop dowels in place.

OK, let's make the heart

1 Transfer the full-sized heart pattern to a piece of 3/8" thick maple. Using a bandsaw or scrollsaw, cut the heart to shape, and then sand the cut edges smooth.

2 For stability, adhere the heart to one corner of your benchtop or to a large piece of scrap material. Using a handsaw, cut a 3/16"-deep kerf down the middle of the heart where shown at *right*.

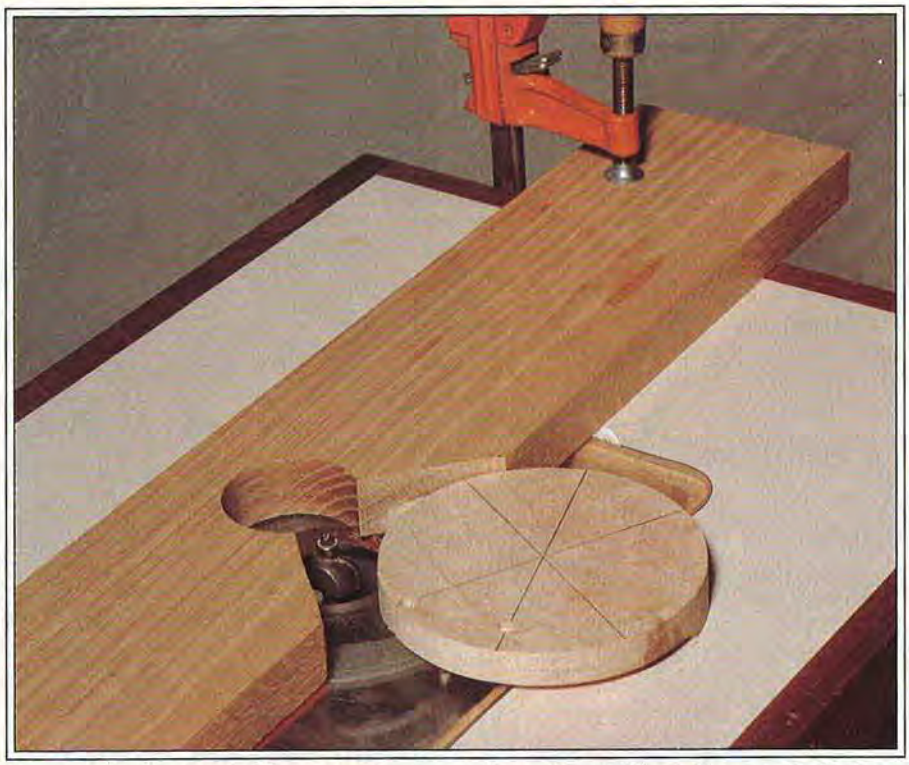
3 Sand or chisel the contours of the heart to the shape shown on the drawing and intro photos. Finish-sand the heart to its final rounded shape.

4 Seal the heart's top surface (we used Deft lacquer). Paint the heart's top surface bright red (we used a quality enamel aerosol).

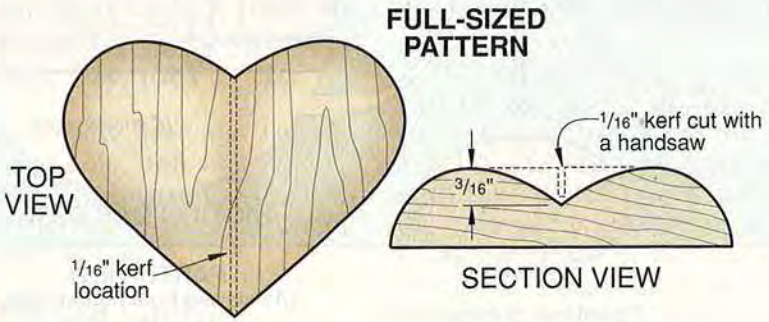
Add the finish and lining

1 Finish-sand the base, trays, and lid. Apply a clear finish (again, we used Deft aerosol lacquer) to the individual pieces.

2 Once the finish dries, lightly sand the tray and base interiors. (A roughed-up finish makes for better adhesion when applying the felt jewelry box linings. Next, cut pieces of felt to fit where shown on the Exploded View drawing. Glue the bottom pieces in place and then the wall pieces.



To rout the base and lid coves, fit your router with a V-block fence to help keep your fingers safely away from the rotating router bit.



Or, for a professional-looking "flocked" interior, see our flocking technique on *page 76*.

3 Glue the pivot dowel into the hole in the lid bottom. Slide the dowel through the pivot holes in the trays and base. To align the outside edges of the trays and lid when closed, you may have to sand the side of the stop dowels slightly. Check the alignment, and sand more if necessary.

4 Tap a ¼" friction cap onto the bottom end of the pivot dowel. The cap allows the dowel to swivel when opening the trays. You also can thread a ¼" nut onto the bottom of the dowel, and secure it with a drop of instant glue.

5 Lightly sand the bottom surface of the base, and adhere 1/16"-thick cork (we used cork gasket material and adhered it with woodworker's glue). Using an X-acto knife, carefully trim the edges of the cork flush with the outside edges of the jewelry box base.

6 Rough-up a small area on the top of the lid, opposite the pivot pin, and glue the heart in place.

Produced by Marlen Kemmet Project Design: Lorenzo Freccia Photographs: Wm. Hopkins Illustrations: Kim Downing

Print this article

COUNTRY-TIME PLATE RACK

Country charm radiates from this easy-to-build plate rack. That's, in part, due to the simple joinery and pine tongue-and-groove backing strips. Even the cutout apple motif helps make our project the perfect creation for adding real homespun atmosphere to your kitchen or dining area.

Note: *To form the cabinet back, we purchased economy-grade tongue-and-groove knotty pine plank paneling at a local home center. Our strips measured ¼" thick by 3½" wide. They came packed in random lengths measuring 5' to 8' long. The stock is quite inexpensive, but we did have to work around a few knots and defects. You also could use ¼" plywood for the back.*

Cut the main frame pieces first

1 From ¾"-thick pine, cut the sides (A), shelves (B), and upper and lower rails (C) to the sizes listed in the Bill of Materials.

2 Using double-faced tape, adhere the two sides (A) face-to-face with the edges and ends flush. Transfer the full-sized top and bottom patterns on the next page, including the hole centerpoints, to the ends of the taped-together side pieces.

3 Using a bandsaw or scrollsaw, cut the ends of the side pieces to shape. Separate the pieces and remove the tape and residue.

4 Dry-clamp (no glue) the assembly (A, C) to check the fit and for square. Drill the screw-mounting holes through the sides (A) and into the ends of the rails (C) where shown on the Exploded View and Section View drawings. See the Screw-Hole detail accompanying the Exploded View drawing for hole sizes.

5 With the pieces still dry-clamped, rout a ¼" rabbet ¼" deep around the back inside edge of the A/C assembly. See the Exploded View drawing and

Continued

PLATE RACK

accompanying Rabbet detail for reference. Remove the clamps and disassemble the unit.

6 Mark the dado locations on the side pieces where dimensioned on the Exploded View drawing. Using your tablesaw or radial-arm saw, cut ¾" dadoes ¼" deep where marked. (We set a stop when cutting each dado to ensure that the dadoes are in the same location on each side piece.)

7 Cut a ⅜" groove ¼" deep in each shelf (B) where shown on the Section View drawing.

Add the shelves and upper and lower rails

1 Enlarge and transfer the full-sized apple and top outline pattern to the upper-rail blank. Tape the upper and lower rails (C) face-to-face, and cut the outlines to shape. Separate the pieces and remove the tape.

2 Next, drill a blade-start hole, and scrollsaw the apple to shape in the upper rail (you also could use a coping saw).

3 Glue, clamp, and screw the sides (A), shelves (B), and top and bottom rails (C), checking for square. Position the shelves (B) into the dadoes in the side pieces so the back edge of the shelves are flush with the inside edge of the rabbets. This will leave enough room for installing the pine plank paneling.

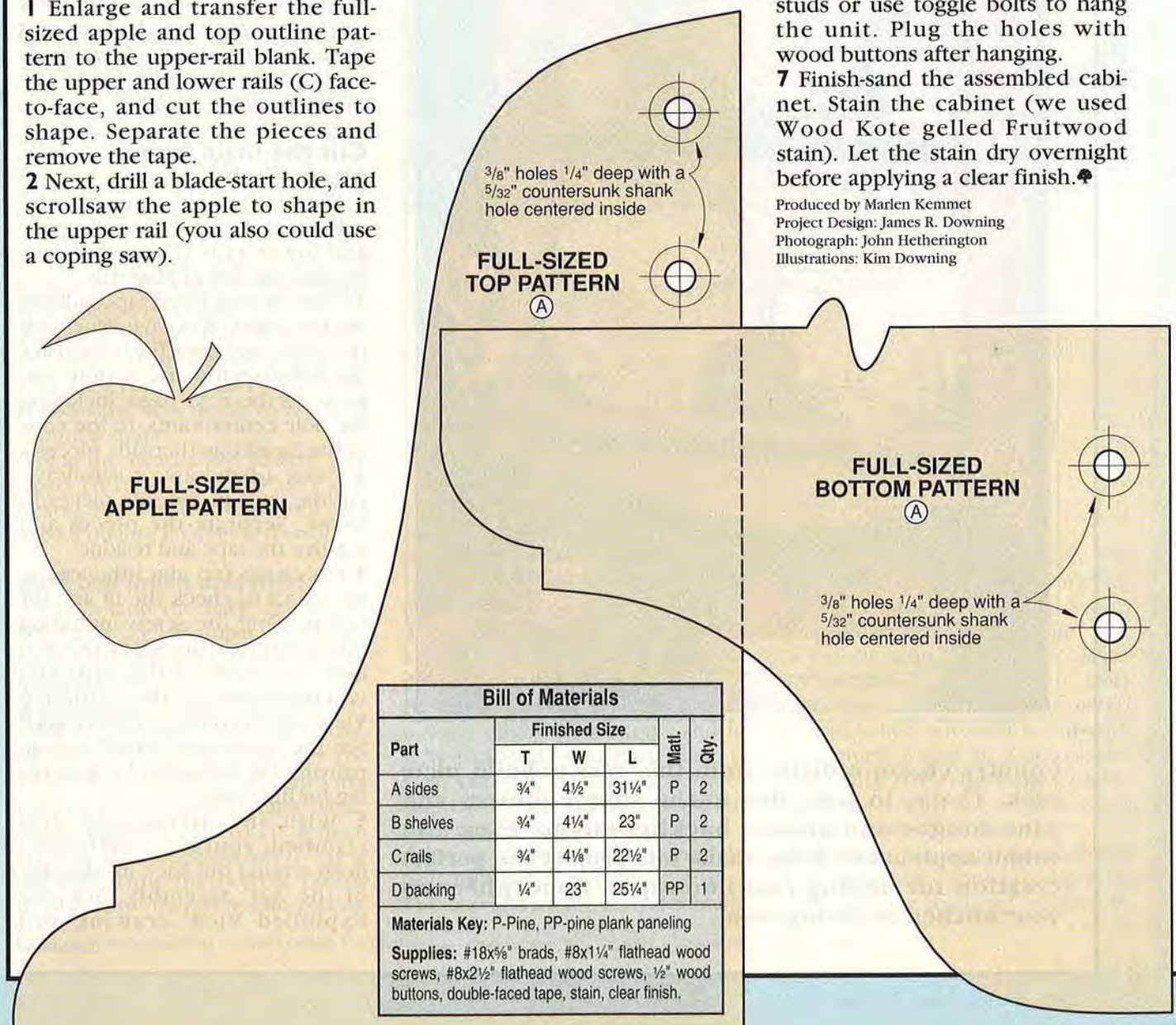
4 Cut ⅜"-diameter plugs from 5/16" stock, and plug the screw-mounting holes. Sand the plugs flush with the outside surface of the side pieces.

5 Working from the center of the rack out, crosscut pieces of the pine plank paneling to fit into the rabbeted back edge of the cabinet assembly. Hold the pieces in place with masking tape. You'll need to rip the two outside pieces for a good fit. Glue and nail the pieces in place, being sure to wipe off excess glue with a damp cloth. (We used #18x⅝" brads to secure the pine plank paneling in the rabbets and to the back edges of the shelves where shown on the Section View drawing.)

6 For mounting to the wall later, drill and counterbore a pair of mounting holes through the upper and lower rails (C). You'll need to use long screws and hit studs or use toggle bolts to hang the unit. Plug the holes with wood buttons after hanging.

7 Finish-sand the assembled cabinet. Stain the cabinet (we used Wood Kote gelled Fruitwood stain). Let the stain dry overnight before applying a clear finish.

Produced by Marlen Kemmet
Project Design: James R. Downing
Photograph: John Hetherington
Illustrations: Kim Downing

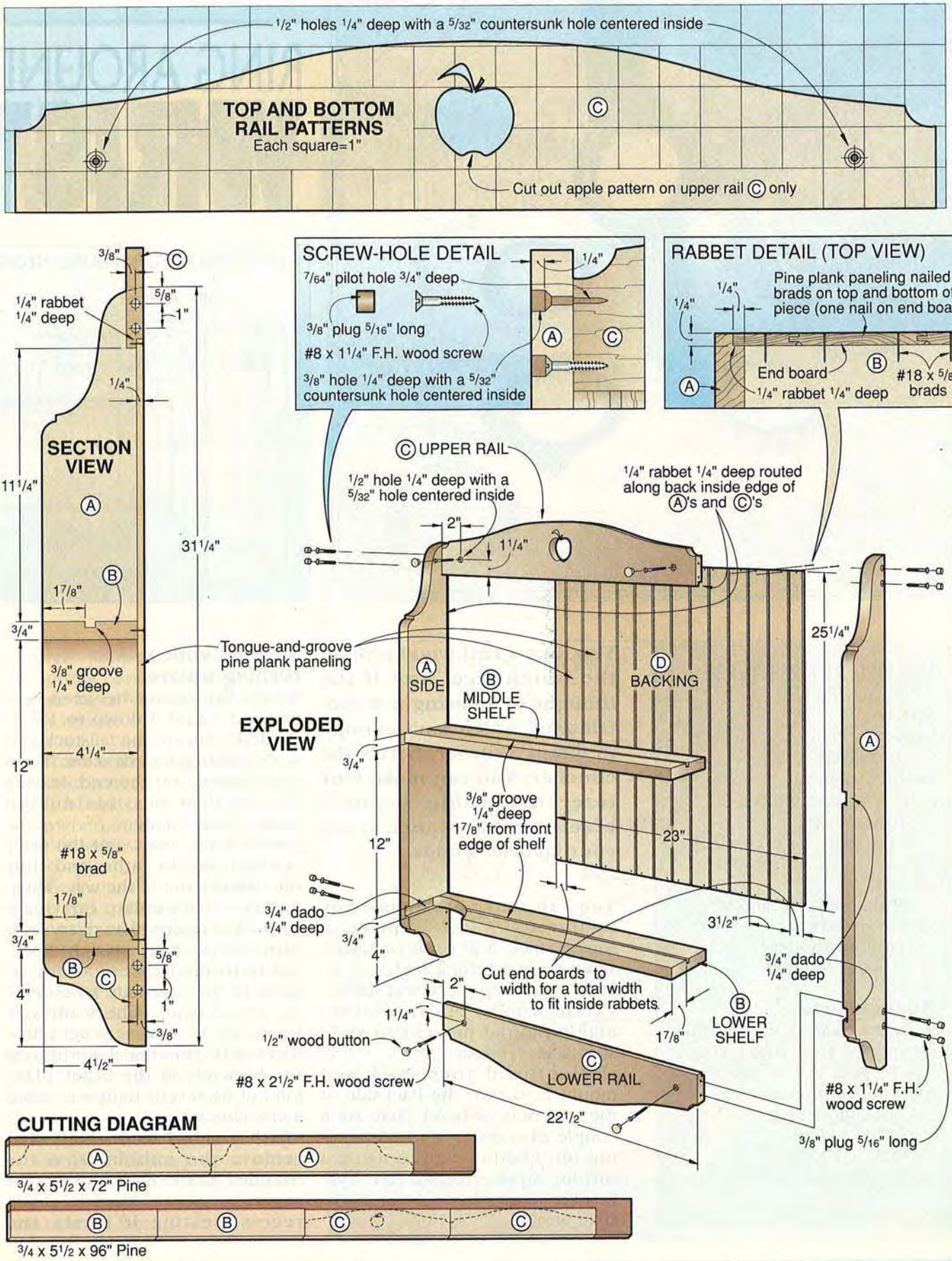

3/8" holes 1/4" deep with a 5/32" countersunk shank hole centered inside
FULL-SIZED TOP PATTERN
(A)
FULL-SIZED APPLE PATTERN
FULL-SIZED BOTTOM PATTERN
(A)
3/8" holes 1/4" deep with a 5/32" countersunk shank hole centered inside

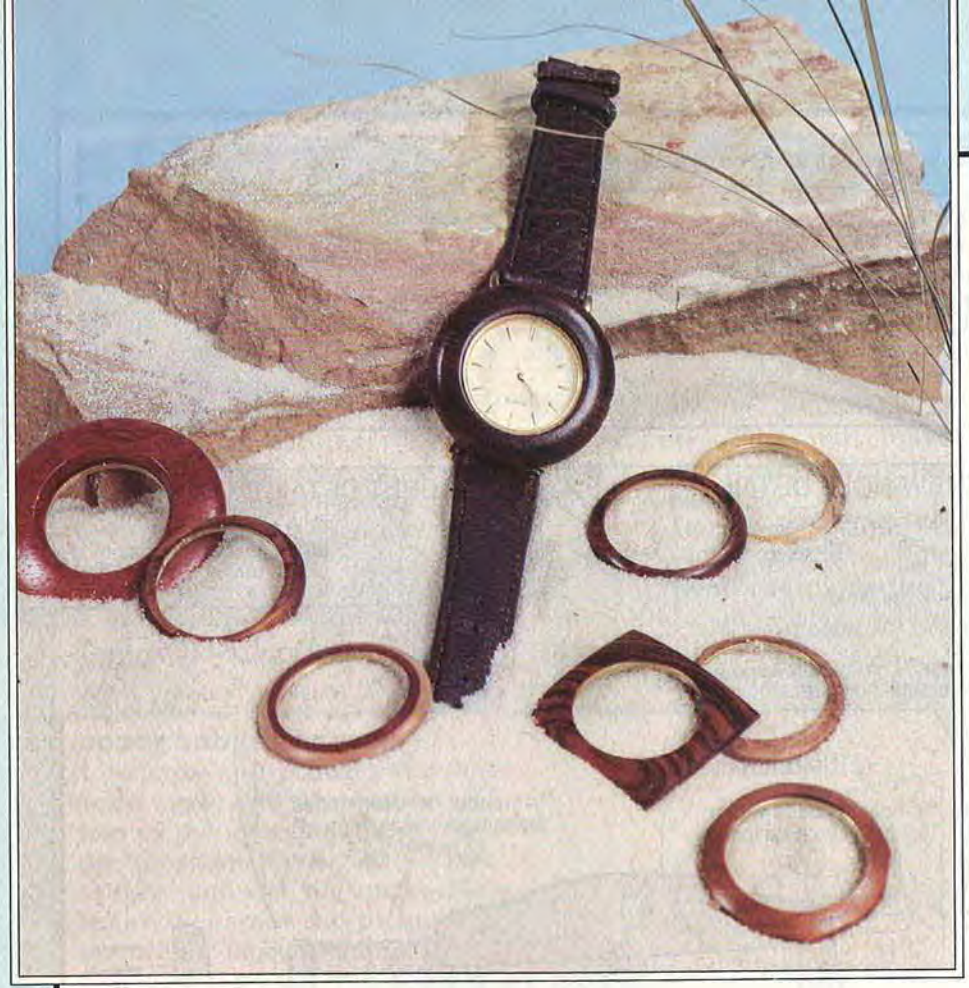
Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A sides	¾"	4½"	31¼"	P	2
B shelves	¾"	4¼"	23"	P	2
C rails	¾"	4⅛"	22½"	P	2
D backing	¼"	23"	25¼"	PP	1

Materials Key: P-Pine, PP-pine plank paneling

Supplies: #18x⅝" brads, #8x1¼" flathead wood screws, #8x2½" flathead wood screws, ½" wood buttons, double-faced tape, stain, clear finish.


1/2" holes 1/4" deep with a 5/32" countersunk hole centered inside
TOP AND BOTTOM RAIL PATTERNS
Each square=1"
C
Cut out apple pattern on upper rail C only
SCREW-HOLE DETAIL
7/64" pilot hole 3/4" deep
3/8" plug 5/16" long
#8 x 1 1/4" F.H. wood screw
3/8" hole 1/4" deep with a 5/32" countersunk hole centered inside
1/4"
A
C
RABBET DETAIL (TOP VIEW)
Pine plank paneling nailed with two brads on top and bottom of each piece (one nail on end boards)
1/4"
1/4"
A
End board
1/4" rabbet 1/4" deep
B
#18 x 5/8" brads
D
3/8"
C
1/4" rabbet 1/4" deep
5/8"
1"
1/4"
SECTION VIEW
11 1/4"
A
31 1/4"
B
1 7/8"
3/4"
3/8" groove 1/4" deep
12"
4 1/4"
#18 x 5/8" brad
1 7/8"
3/4"
B
C
5/8"
1"
4"
3/8"
4 1/2"
C UPPER RAIL
1/2" hole 1/4" deep with a 5/32" hole centered inside
1/4" rabbet 1/4" deep routed along back inside edge of A's and C's
2"
1 1/4"
Tongue-and-groove pine plank paneling
A SIDE
B MIDDLE SHELF
D BACKING
EXPLODED VIEW
25 1/4"
A
3/4"
3/8" groove 1/4" deep 1 7/8" from front edge of shelf
12"
23"
3/4" dado 1/4" deep
3/4"
4"
3 1/2"
3/4" dado 1/4" deep
Cut end boards to width for a total width to fit inside rabbets.
2"
1 1/4"
1/2" wood button
#8 x 2 1/2" F.H. wood screw
B LOWER SHELF
1 7/8"
C LOWER RAIL
22 1/2"
#8 x 1 1/4" F.H. wood screw
3/8" plug 5/16" long
CUTTING DIAGRAM
A
A
3/4 x 5 1/2 x 72" Pine
B
B
C
C
3/4 x 5 1/2 x 96" Pine



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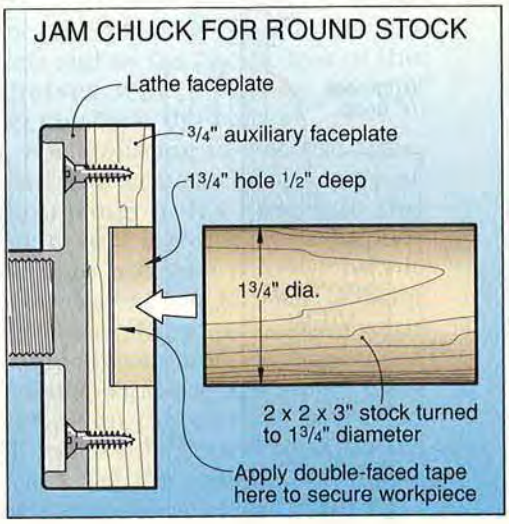
RING AROUND WRIST


JAM CHUCK FOR ROUND STOCK
Lathe faceplate
3/4" auxiliary faceplate
1 3/4" hole 1/2" deep
1 3/4" dia.
2 x 2 x 3" stock turned to 1 3/4" diameter
Apply double-faced tape here to secure workpiece

WE USED THESE TOOLS AND SUPPLIES:

Stock
Miscellaneous scrapwood (see text)

Lathe tools
Drive center, tail center
Screw center
3" faceplate
Gouges 5/32", 1/4", and 1/2"
Skew 1/2"
Parting tools 1/16" and 1/8"

Lathe speeds
Turning, sanding
1100–1400 rpm

Buying guide

•**Quartz watch** with leather strap and four brass rings, $26.95 ppd. in U.S. Add $5.50 for wooden presentation case.
Craft Supplies USA,
1287 E. 1120 S.,
Provo, UT 84601
Or call 801/373-0917

Yep, that's real wood around the watch face. And if the thought of wearing a wood-trimmed watch isn't enough to tempt a turner, here's the clincher: You can make four interchangeable wooden bezels for this watch, using your favorite woods.

You can start with almost any scrapwood. A 2×2×3" piece of square stock, a 2" circle or square sawn from 3/4"-thick material, or even a glued-up piece will suffice. Exotic woods, burls, or other highly figured pieces can yield spectacular results.

First, round your stock and mount it to turn the backside of the trim ring, or bezel. Here are a couple of ways to start, depending on whether you're using a turning square for spindle-style turning or plank stock for bowl-style turning.

To start with a turning square

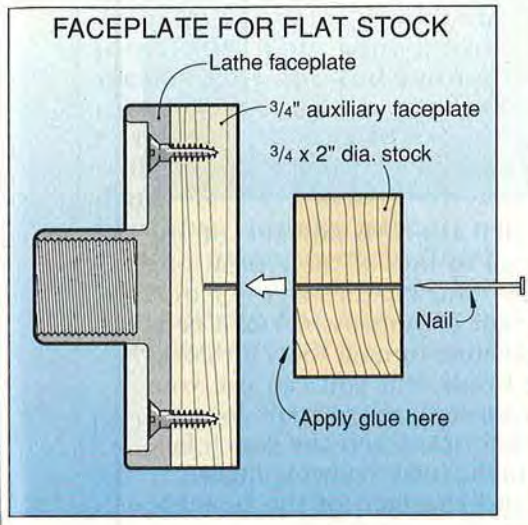
Mount the square between centers and round it down to 1 3/4–2" diameter. Square the tailstock end with a parting tool or skew. Form a flat surface on the end, leaving the smallest possible nubbin under the tail center.

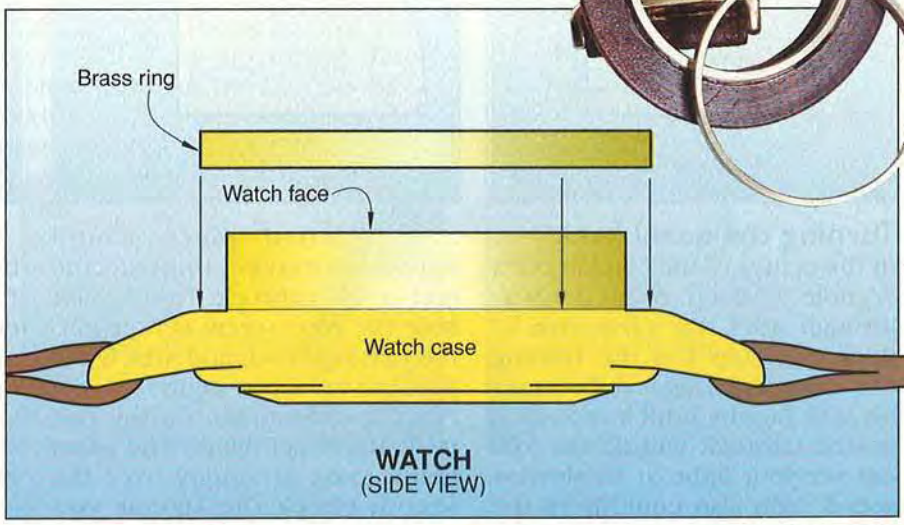
Remove the stock and the drive center from the lathe, and slide the tailstock out of the way. Then, mount a 3" faceplate carrying a 3/4"-thick scrapwood auxiliary faceplate. Gouge-cut a straight-sided, flat-bottomed recess about 1/2" deep in the faceplate to receive the round stock. Check the size frequently to achieve a tight fit—this will be your chuck for turning the backside of the bezel. (This kind of friction-fit fixture is called a *jam chuck*.)

With a chisel or dovetail saw, remove the nubbin from the rounded stock. Slide the stock's squared end into the jam-chuck recess, seating it firmly and

THE WATCH

THE TIME IS RIGHT FOR TURNING THIS PROJECT





squarely, shown *above left*. If friction doesn't hold it securely, place double-faced tape in the bottom of the recess.

To start with a flat blank

For stock sawn from a board or a bowl blank, attach a ¾"-thick scrapwood auxiliary faceplate to your lathe's 3" faceplate. Mount the faceplate and true the surface.

At the center of the auxiliary faceplate, drill an index hole about ⅜" deep to fit an alignment pin such as a 16d nail, a scrap of ⅛" dowel, or a drill-bit shank, shown *above*. (We used a twist-drill bit in a Jacobs chuck mounted on the tailstock.) Drill a hole the same size through the center of your stock.

Now, insert the pin to align the holes as you join the workpiece to the faceplate with cyanoacrylate adhesive. Double-faced tape works great for stock up to about ¾" thick, too. Remove the pin. Turn the stock to 1¾–2" diameter, and true the face.

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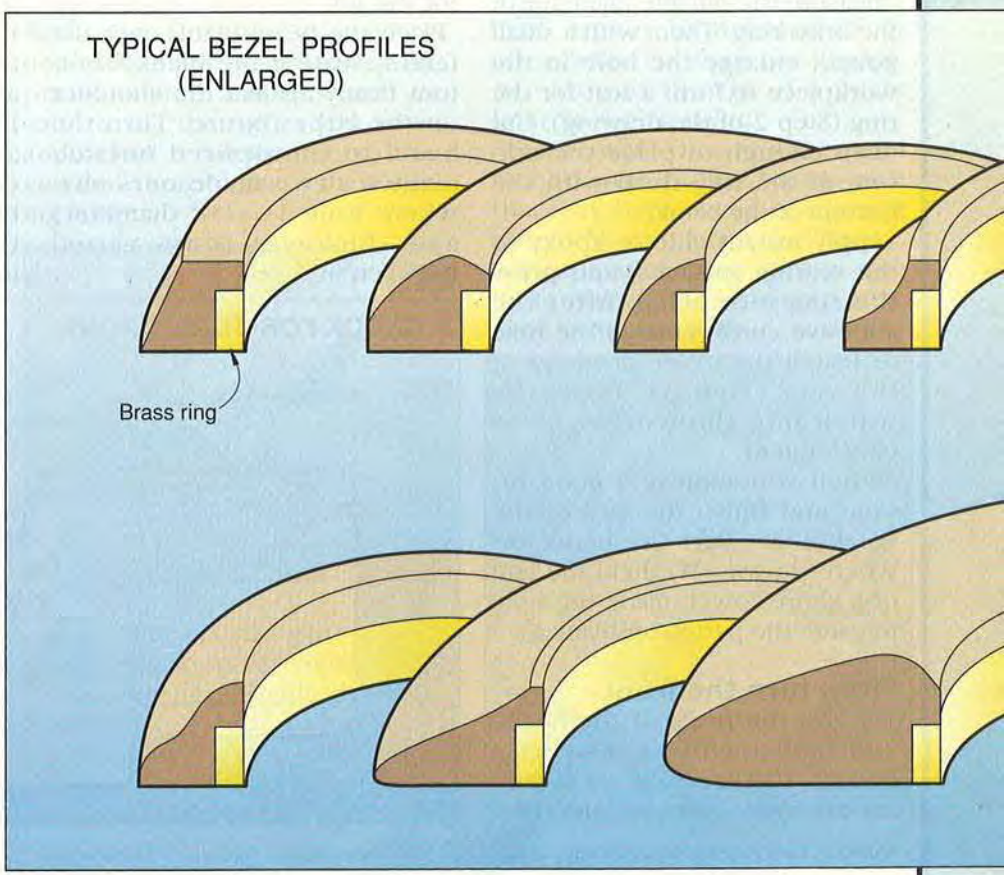
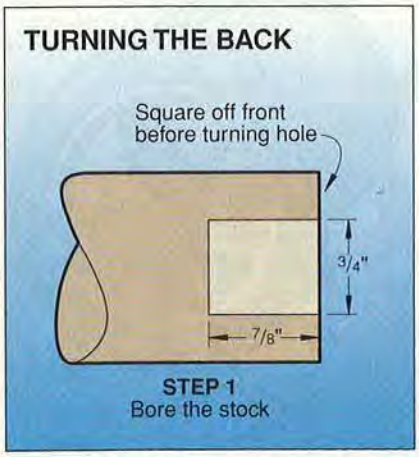
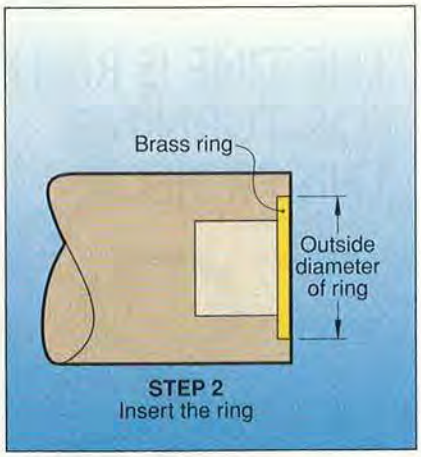
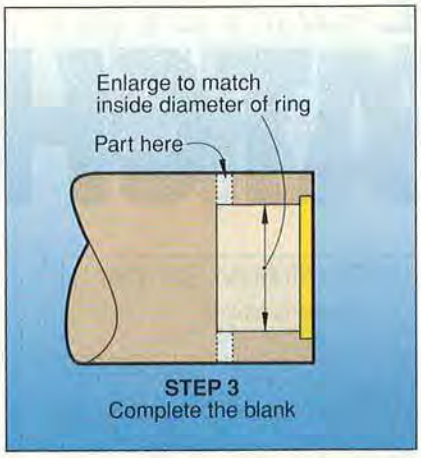


WRISTWATCH







Turning the bezel back

In the center of the blank, bore a ¾" hole ⅞" deep, or all the way through stock that's less than ⅞" thick (see Step 1 of the Turning the Back drawing). A Forstner bit and Jacobs chuck mounted on the tailstock will do the job, but set your lathe at its slowest speed. You also could bore the hole with a gouge.

Measure the outside diameter of the brass ring. Then, with a small gouge, enlarge the hole in the workpiece to form a seat for the ring (Step 2 of the drawing). Cut deep enough to place the bottom of the ring flush with the bottom of the blank.

Apply instant glue or epoxy to the seating surfaces, and press the ring into place. After the adhesive cures, enlarge the hole to match the inside diameter of the ring (Step 3). Press the watch into the workpiece to check the fit.

When you achieve a good fit, sand and finish the end of the workpiece. Part the blank off where shown. (We held the end of a short dowel inside the hole to catch the parted-off blank.)

Now, turn the front

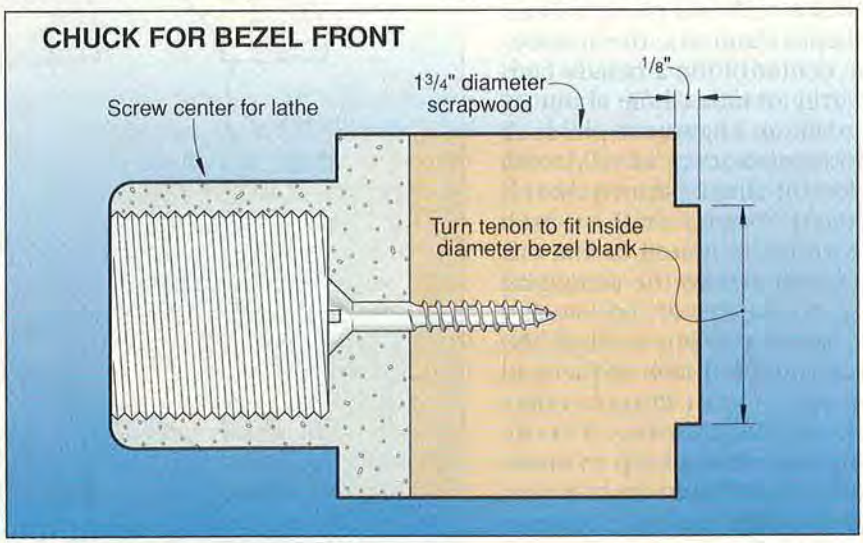
To turn the front of the bezel, you first need to construct a chuck fixture like the one shown *right*. To make one, turn a scrapwood piece round between centers, and true the end at the tailstock. Drill a pilot hole for your screw center into the tailstock end, and attach the piece to the screw center.

Turn a short tenon on the end to fit the bezel blank. The bezel blank must fit snugly over the tenon; check the size as you work. A parting tool works great for this job.

Place the bezel blank over the tenon, seating the blank's bottom firmly against the shoulder on the lathe fixture. Turn the bezel to the desired outside diameter (we made ours anywhere from 1¼–1¾" diameter) and thickness (ours varied between ⅛" and ¼").

Turn the top surface of the bezel to one of the typical profiles shown on *page 53* or a design of your own. You'll need miniature-turning tools for coves or beads, but you can use your smallest standard tools for convex forms. Insert the watch face into the hole to check the fit.

Sand the face of the bezel to 320 grit, and finish as desired. Press the bezel onto the watch. If it seems too loose, build up the inside of the brass ring with a thin application of instant glue. If the stem knob interferes with a wide bezel, carve a slight depression in the bottom of the bezel for clearance. To complete the set, turn three more bezels in different woods or styles.



Written by Larry Johnston with Dick Sing Photographs: John Hetherington Illustrations: Kim Downing

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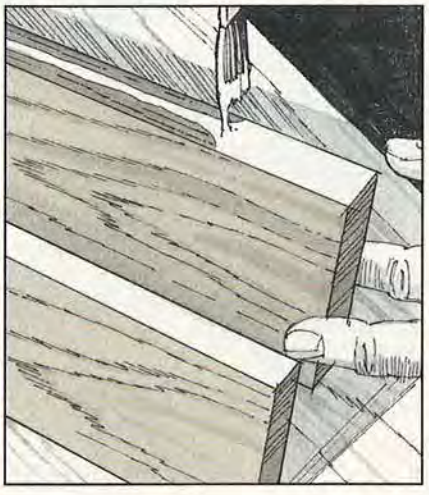
One good way to deal with GLUE SQUEEZE-OUT

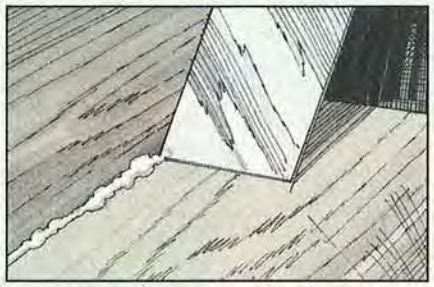
When you clamp together glued pieces, you should see some glue oozing out at the joint line. This squeeze-out means you applied enough glue to ensure a proper bond. But , if you don't control and clean up this excess glue, it will show up as blotchy marks after you apply a stain or clear finish. Here's a simple procedure for putting the squeeze on glue squeeze-out.

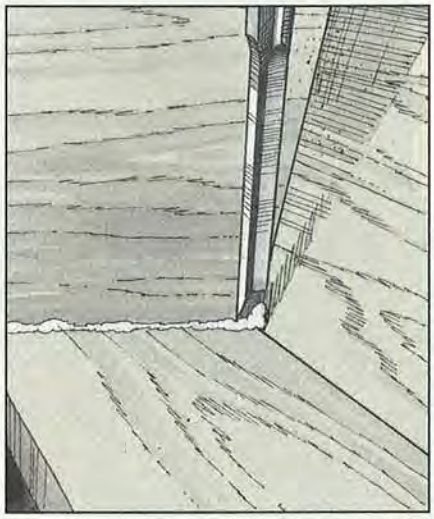
1 By properly applying the glue, you'll save yourself a lot of cleanup later. First, lay down a bead of glue on both mating surfaces. With a small brush, spread the glue into a thin, uniform layer as shown *below*. (We use the disposable acid-flux brushes available at most hardware stores.)

Allow the glue to sit at least 30-45 seconds before clamping the pieces together. This way, the glue sets up slightly, more of it soaks into the workpieces, and less oozes out of the joint.



2 Immediately scrape up the excess glue with a putty knife, being careful not to spread it to adjoining areas. Slightly round the corners of the knife to prevent scratching the wood surface.



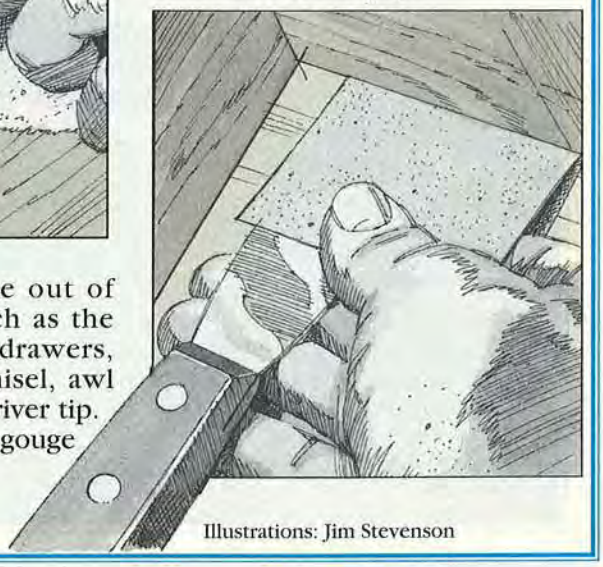


3 Wipe up the glue with a wet rag. Have the rag ready ahead of time so that you don't waste any time between the previous step and this one. Be sure to roll the rag as you wipe, and refold it frequently, so that you don't spread glue onto adjoining areas.

4 To get the glue out of tight spots, such as the corners inside drawers, scrape it out with a chisel, awl point, or slotted screwdriver tip. Again, be careful not to gouge the wood surface.

5 Sand the affected areas to remove any remaining traces of dried glue. It often helps to wrap the sandpaper around the tip of a putty knife as shown *below*.

Then, wait five minutes and recheck your project for any glue that may have oozed out during your cleanup efforts. Finally, wipe the joints with mineral spirits to reveal any remaining glue. Sand as necessary.



Written by Bill Krier with Jim Boelling

Illustrations: Jim Stevenson

Wood-Mizer
LT30 G18
CAUTION
CAUTION
DANGER

Print this article

THE WOOD® GANG GOES LOGGING

FELLING TREES AND SAWING BOARDS TAKES A LOT OF HARD WORK, BUT IT'S GREAT FUN, TOO!

Have you ever dreamed of milling your own woodworking stock from a tree that you cut down in the forest? At *WOOD*® magazine we did, so one day last winter we made it reality.

Dave Mann, *left*, and Bill Krier lead the log bearers up the hill to within reach of the tractor's cable.

When Wood-Mizer's sales manager, Dave Mann, spoke of milling boards from a log, he ignited the glow of interest. The editors around the conference table nodded their heads.

The occasion was a product presentation early last winter by the Wood-Mizer company of Indianapolis to the *WOOD* magazine staff. Wood-Mizer makes portable bandsaw mills and markets them around the world. But they've always seen their product as a natural for woodworkers who want to use quality home-grown stock. A team that included Dave Mann, Bill Metzger, marketing manager, and Jonathan Shaw, a public affairs specialist, journeyed all the way to Des Moines to get the message across.

I remember editor Larry Clayton's enthusiasm after the meeting. "Hey," he said, "it would be really neat to get out from behind our desks and spend a winter day in the woods! We'll find some good trees, fell them, haul them out, and saw them up! Then we'll share the wood." Larry's enthusiasm quickly spread to managing editor Jim Harrold, products/techniques editor Bill Krier, design editor Jim Downing, and me. The idea sounded great and before long the gang picked a day when we could head for the woods.

In writing feature articles, I've seen quite a few logging operations, and visited a number of saw mills. I even felled and sawed up a seemingly endless sea of trees for firewood when I relied on it for heat years ago in northern Wisconsin. But this was the first time I took part in actually making woodworking stock—from trees to boards.

Peter J. Stephano

Peter J. Stephano, Senior Editor

Our vehicles fell in—convoy-like—to roll across the 20-acre pasture to the hardwoods. Startled, the farm's half-dozen horses and a donkey trotted toward more distant forage.

For us, the brief and bouncy ride on a gray late-winter morning was the first leg of an adventure in raw woodworking. All of the magazine's staffers who first showed interest were there. Counting Greg Wood, who owned the land (and the trees), his father, Clayton, Dave Mann and Burl Tichenor from Wood-Mizer, we numbered nine. Plenty of labor to handle the trees that Jim Harrold and I had selected earlier in the week.

"Who's experienced with a chain saw?," Jim Harrold shouted after we had parked our vehicles at the wood's edge. Editor Larry Clayton didn't bother to raise his hand. He simply grabbed one of the well-used tools we'd brought along and asked for directions to one of the trees.

It was barely nine o'clock. The morning wasn't bright, but it was warm, at least for early March in Iowa. We'd all dressed in comfortable layers, suspecting that the forecasters predictions for an afternoon cold front would come true. And it did, right on schedule. A month earlier and we would have frozen. February in Iowa this year was particularly cold. A month—or even weeks—later the ground would have turned to the muck of a spring thaw, making logging on Greg's hilly farm just

Continued

south of Des Moines nearly impossible. As it was, we slipped on bare ground, patches of ice, and clinging snow, but didn't sink in. As we found out, our tricky footing was perfect for skidding logs.

The whitest walnut in Iowa

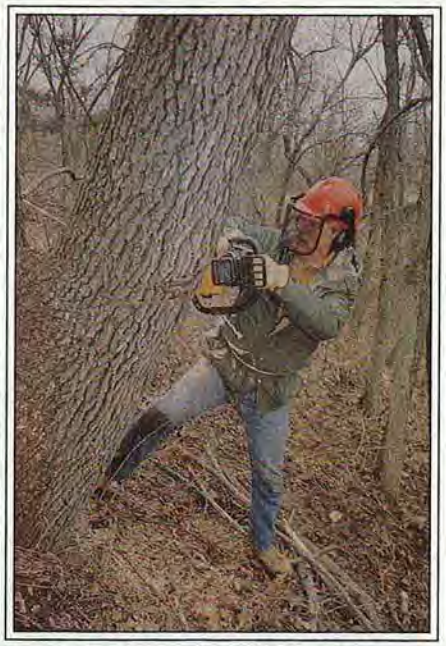
Brrrrrupppp. Brrrrrupp. Pup, pup, pup. Larry had fired up the chain saw. Through the thin cover of locust and willow trees on my side of the gully I could see him on the other side, crouched at the base of a tall, leaning tree. A few of the other guys gathered out of harm's way, watching.

"That's a nice walnut, lots of clear wood," said one. "Yeah, that part's right, but it looks a lot like an ash," said another. "Hard to tell, the bark's alot alike," offered a third.

Brrrrruppp. Brrrrrup. The saw hummed. In a second, all doubt was erased. White chips began to fly. Then more. "She's coming down!" someone over by Larry yelled as I heard the crackling, and then the swish and pop of limbs hitting and breaking.

"That's the whitest walnut I've ever seen," Larry laughed when the thud of the falling tree was only an echo. "You're right, it's a white ash, and a good one," I confirmed, my words carrying the expertise I should have displayed when I picked out the tree a week earlier. After bucking (crosscutting into saw-log lengths), the clear part of the 20"-diameter trunk yielded four straight logs—two eight-footers and two sixes. It was a top quality tree.

In turn, I cut a fat black cherry that had potential for crotch-figured wood. (I left a good portion of stump and the smaller of its twin trunks on the hillside to remain as erosion protection.) Next, from the creek bank, Greg took an open-grown walnut that was edging past its prime. The clearest section of the walnut's trunk measured 18" for about 10'.



Secured on the hillside by a safety rope, Pete Stephano prepares to make the first felling cut on a black cherry tree.

To the growing harvest of logs, we added a small but straight hackberry tree that was crippled by the falling walnut.

We now had enough to saw up a sizeable stack of boards. We turned to limbing and topping the downed trees, a process that removes all the branches from the main trunks. Four chain saws buzzed, piling up stacks of future firewood for all who wanted it.

What logs hadn't been bucked were measured, marked, and crosscut. Now, the problem rested in getting them up the hill from the creek bed.

Logs to muscle up

"More cable!" yelled Bill Krier, the sweat trickling from under his blaze orange hunter's cap. Greg backed the tractor to the edge of the embankment. Hands pulled the cable toward the logs. "It's short," a voice called out.

Moving the logs to within the cable's reach so that they could be hauled up to flat ground was the day's endurance test. Eight-foot-long green logs can weigh as much as a grand piano!

By turning, prodding, levering, and flipping them end-for-end, our gang of eager, although inexperienced loggers got the saw logs over and out of the creek bed. Still, they lay beyond the cable.

"Let's carry them, on poles," suggested Dave Mann, explaining the procedure of slipping stout poles under each log, and then having a team of bearers lift and lug them one by one. Dave assured us that native loggers in the tropics moved logs that way when the terrain prevented the use of heavy equipment. The scheme worked.

Living lessons in grade sawing

With the logs finally at the open milling site, we caught our collective breath. The tough, intense logging—the felling, topping, limbing, bucking, carrying, and skidding—was over. It was 11:30 a.m.—time for lunch.

"I figure log scale at 441 board feet," announced Dave, glancing at his small notebook and the numbers scribbled there. I'd noticed him moving from log to log, recording the measurements of length and diameter that he took with his steel tape. A few weeks back when we'd scouted the trees, I'd unofficially calculated that they would yield about 380 board feet.

"Does that mean we'll get nearly 500 board feet from these logs?," questioned Jim Downing. Rising from his seat on an ash log, Jim looked at Dave's numbers, avarice in his eyes.

"That's International log scale," said Dave, "calculated by taking the diameter of the log's small end inside the bark and then figuring in its length." Then, to answer Jim, he added, "But that's figuring on cutting with a traditional circular-saw mill that takes a ¼" or better kerf. We'll get more, because the bandsaw mill is more efficient." How much more? We had to wait and see.

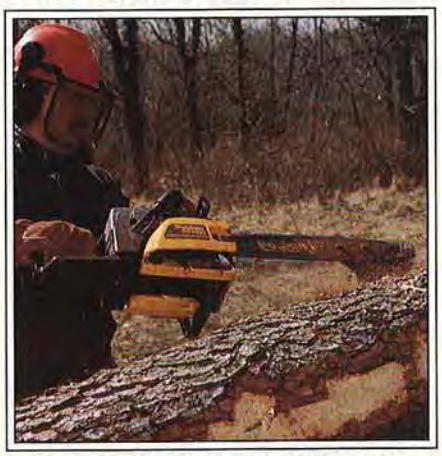
The time to start sawing was near. First, though, Wood-Mizer's Burl Tichenor gave us a walk-through on the sawmill and sawing technique.

Briefly, the Model LT30G18 before us (with some nice accessories, it sells for about $11,000) sported an 18 hp engine to power its moving, cantilevered saw head with a .042"-thick (that's as thin as a credit card) bandsaw blade. The size of the log carriage, or bed, combined with the saw's throat capacity, meant that we could handle logs as large as 36" in diameter and 16'8" long. Of course, we didn't have any even close to that size. But the knowledge that we weren't underpowered was really quite comforting.

Burl passed out ear plugs and eye protection, and then started the mill. It purred like a riding mower. From the control board, he guided the head to lower the blade into cutting position for an imaginary log, and then set it into forward motion, slowly walking and talking behind the moving unit. We could tell that Burl was so familiar with the machine that he could probably saw wood with it in his sleep!

"Okay, let's do a log!" urged Jim Downing. He—like most of us—really likes power tools.

On our demonstrator mill, it was possible for one man to hand-winch a log into position on the saw bed with a steel cable. And we did the first one that way, just to see it work. But our crew represented enough manpower to roll a log up hand-over-hand and onto the machine in much less time. That's how we positioned all the others.



Using a short planer-blade attachment called a Log Wizard, Bill Krier clears a log of bark and dirt with a chain saw.

For teaching purposes, we chose one of the more diminutive ash logs as the leading candidate. In position—it's bone-white butt end on view from the operator end of the mill—it teased us with what lay under its bark. First, though, we had decisions to make, because there's more than one way to saw a log.

"Grade sawing," Burl explained, "means sawing from the best, or defect-free, side of the log. But it involves turning the log every so often to keep a clear face to saw from. It takes longer, but you get boards that are good and clear. And they're what's called flat-sawn lumber."

Then Burl talked about quarter sawing, which basically involves cutting the log in half, and then sawing each half vertically into boards, like slicing half a watermelon lengthwise. The result is very stable wood, and in some species, such as oak, a preferable grain pattern. The drawbacks are more sawing time, narrower boards, and a lower yield per log.

A third option was sawing through and through. This means slabbing off the rounded bark-bearing sides of the log, and then sawing up the resulting square, called a cant, without turning it. There's little effort involved, but the method lends itself better to softwoods. (See the illustration, *right*, for these sawing options.)

For the best boards in the amount of time we had available, we opted for grade-sawing. Our next decision involved the rough thickness of the boards.

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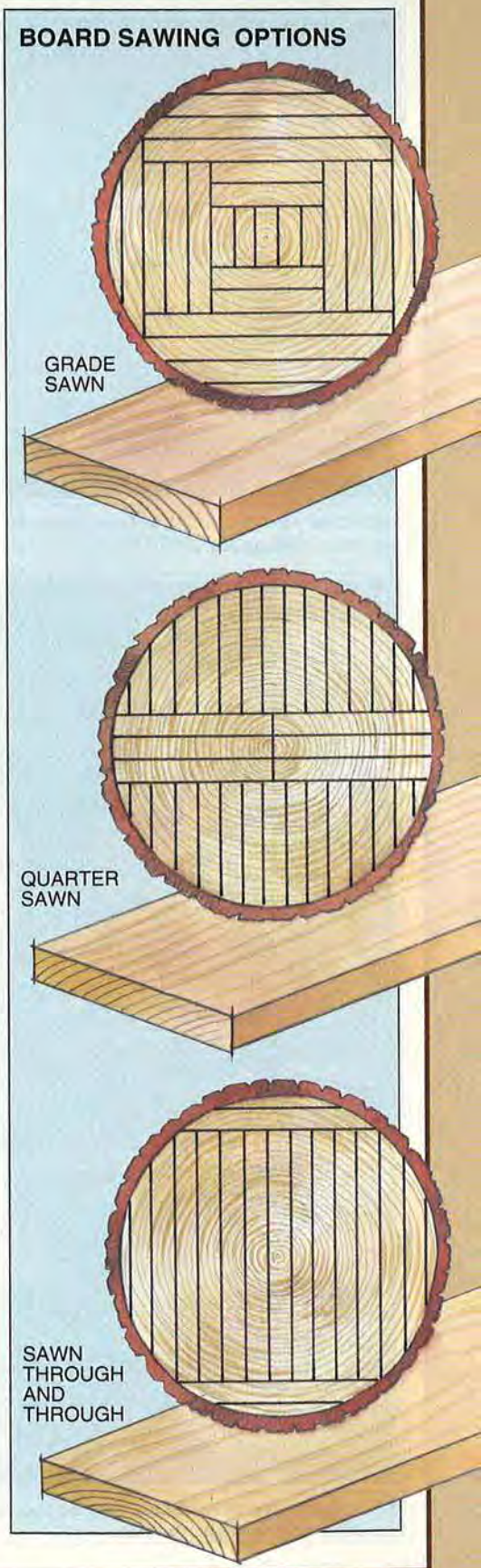

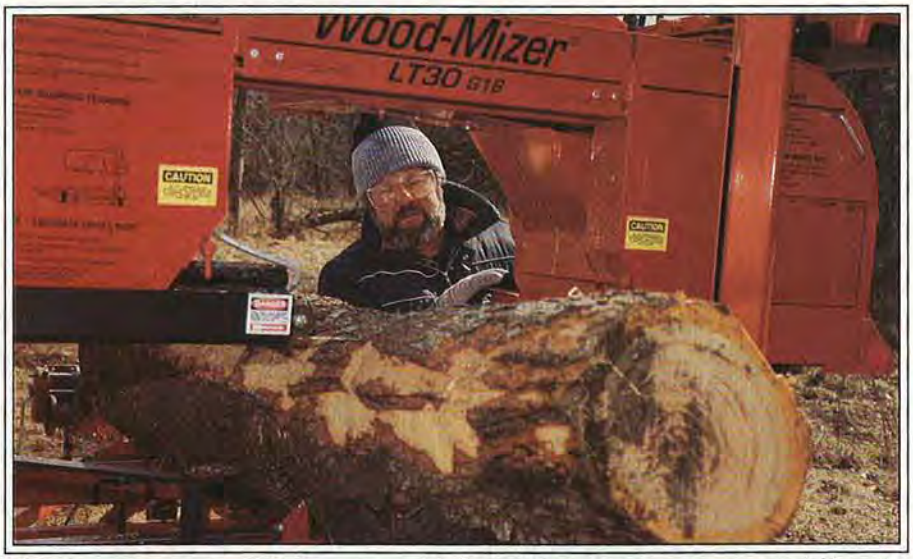

With four saw passes, Jim Downing will shape this log into a square cant. Then, he can start sawing for grade from the best, defect-free side.

While Jim Harrold inspects one of the first slabs of ash, Pete Stephano guides the bandsaw through another cut.

According to Burl, commercial hardwood mills traditionally saw boards to 1⅛" thickness. This allows for shrinkage and planing the wood smooth after it seasons. A bandsaw mill, however, leaves an impressively smooth surface on the rough-cut boards. That's why we decided to set the head to saw boards 1 5/16" thick. After seasoning and dressing, they'd be down to ¾" with less waste.

Sawing into the sunset

There's something fascinating, even mesmerizing, about opening up a log and dividing it into boards. Jim Downing equates it with opening the pages of a big coffee-table book on color photography. "You never exactly know how much beauty will be on the next page," he said, in reference to the figure seen on each board waiting to be sawn from the cant.

Then, too, there's the precision, and the power. "Think of it," Jim said, "we're out here in a clearing, surrounded by woods and fields, with mud on our boots and sun on our faces, and here's this highly technical machine making perfect cuts, one after another. All you do is turn up the speed, and it slices effortlessly through a big ol' log." No one else said it better.

We left most of the sawing to Burl, our on-hand expert. That's because there just wasn't time for all of us to saw. Dave, Burl, and the Wood-Mizer would leave for home come morning. At that time of year, we only had light enough to mill logs until supper time, and there was a pile of them.

One after another—ash, more ash, cherry, walnut, more walnut, then hackberry—Burl worked through the logs we'd cut, hauled, and loaded onto the saw bed. Each board, off-loaded at the end of the cut, was a pleasure to look at in freshly sawn figure and feel in its heft. The lumber pile continued to grow.

Jim Harrold discovered that off-loading freshly sawn, green boards was more work than cutting them on the mill.

It was nearly dark when we rolled the last log onto the mill. It was the little hackberry, and it went for stickers—the little 1" pieces used to separate layers of wood during air-drying.

In the light from a truck's low beams, Dave carefully tallied the day's yield. "We're over scale by about 50 percent," he announced. That means we'd cut 614 board feet instead of the 441 board feet estimated earlier, even subtracting the stickered hackberry (actually, we were 45 percent over). Not bad for a learning experience.

In a later issue of *WOOD*® magazine, we plan to follow this story with one on building a kiln and drying the boards we sawed that day. In the meantime, we'll let our neat stack of ash, cherry, and walnut air-dry down on Greg's farm. That'll give us time to come up with a kiln plan.

Written by Peter J. Stephano
Photographs: Wm. Hopkins
Illustration: Mike Henry

Don't forget safety in the field

Logging may be one of the most potentially dangerous occupations around. But you can protect yourself with common safety sense and the following must-have equipment:

- Hard hat
- Hearing protection
- Safety glasses
- Heavy leather gloves
- Steel-toed boots
- First-Aid kit

The ash, walnut, and cherry in stacks represent only part of the 614 board feet we logged and sawed on a blustery day in early March.

What's out there in sawmills?

Basically, we used a Wood-Mizer bandsaw mill for our hands-on experience because they came to us with the offer to help with any story we might want to do on do-it-yourself lumber. We're glad they did, but should you want to saw your own boards, we recommend looking into any of the machines produced by the manufacturers listed below. You'll find saws at several price levels, offering a variety of features and options.

Better Built Corp.
845 Woburn St.
Wilmington, MA 01887

Breezewood, Inc.
S. 4th St., P.O. Box 266
Reynoldsville, PA 15851

Kasco Manufacturing Co.,
Inc. R.R. 3, Box 393
Shelbyville, IN 46176

Mighty Mite Industries, Inc.
P.O. Box 20427
Portland, OR 97220

Mobile Manufacturing Co.,
798 N.W. Dunbar Ave.,
P.O. Box 258
Troutdale, OR 97060

Sanborn Machine Co., Inc.
Box 29
South Waterford, ME 04081

TimberKing, Inc.
1431 N. Topping
Kansas City, MO 64120

Wood-Mizer Products, Inc.
8180 W. 10th St.
Indianapolis, IN 46214-2400

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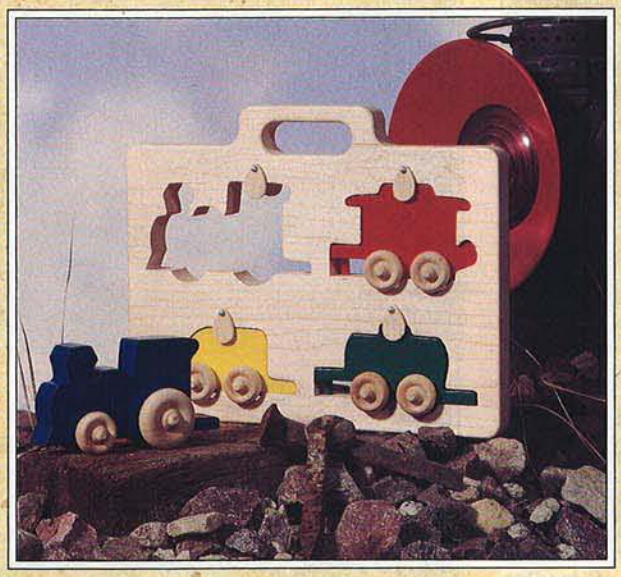
A toy train that's a puzzle, too

CHOO-CHOO



Here's a trainload of play value. After a playtime journey, it's fun to fit the puzzle-like pieces back into the handy carrier.

Note: *To build the train, you'll need 1 1/16"-thick maple 5 1/4×12 1/2", 3 3/4×12 1/2", and 1×12 1/2", one piece each size. You'll also need 14 wheels 1 1/4" dia., two wheels 1 3/4" dia., toy axle pegs to fit the wheels, 1/8"-thick stock, and 1/4" dowel rod.*

Clamp (but don't glue) the three pieces edge to edge with the narrowest piece on the bottom and the widest on top. Draw a vertical centerline on one side.

Photocopy the train patterns. Adhere them to the stock where shown, aligning the straight bottom line of each on a joint. Cut the patterns at the joints with an X-acto knife.

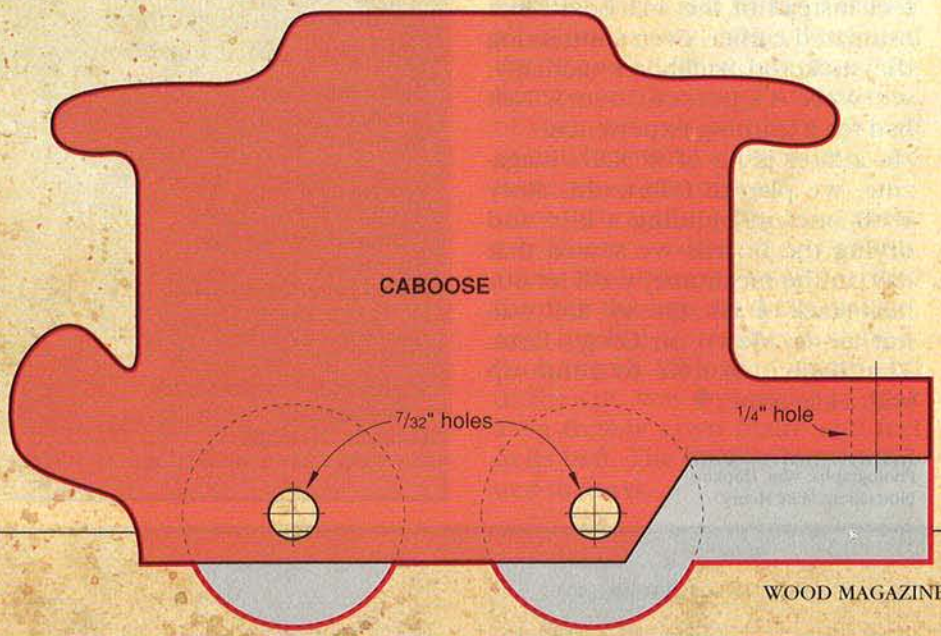
Separate the three boards. Bandsaw or scrollsaw along the *red* pattern lines. (Use a 1/8" blade for bandsawing; for scrollsawing, install a #9 or #11 blade.)

On the top board, lay out the handle according to the Handle Detail. Bore the two 1" holes where shown, backing the stock with scrapwood to prevent tearout. Cut the handle opening between the holes with a scrollsaw. Saw the outside profile.

Glue the three pieces together. Lay out and bandsaw the rounded corners. Sand the outside and inside edges. Drill the four pilot holes through the carrier where shown. With a 1/8" round-over bit and table-mounted router, round over the inside of the handle opening and all outside edges.

Drill the holes for the axles and couplers through the train pieces where shown. Saw along the *black* lines on the train pieces. Cut three 3/4" lengths of 1/4" dowel, and glue them into the 1/4" coupler holes. Make eight retainers from 1/8" stock.

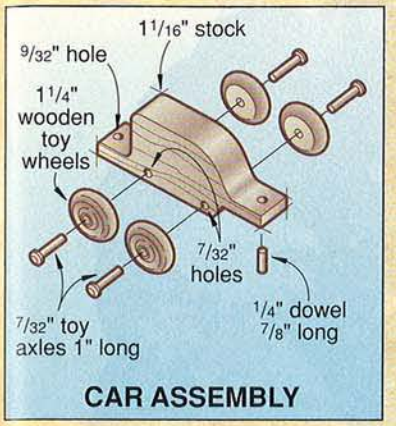
Finish-sand all parts. Paint the train with acrylic artist colors, and apply a clear finish. Shorten the toy axle pegs to 1" long, and install the wheels, taking care not to pinch or glue them. (To cut off the axle pegs, we made a jig like the one shown in the shop tip on *page 15*.) Then, install the retainers with #4×5/8" screws, and put the train into the carrier.



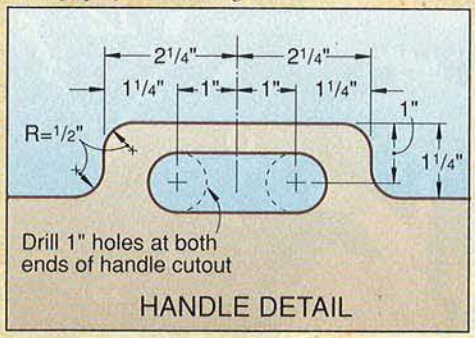
TO GO

FULL-SIZED PATTERNS

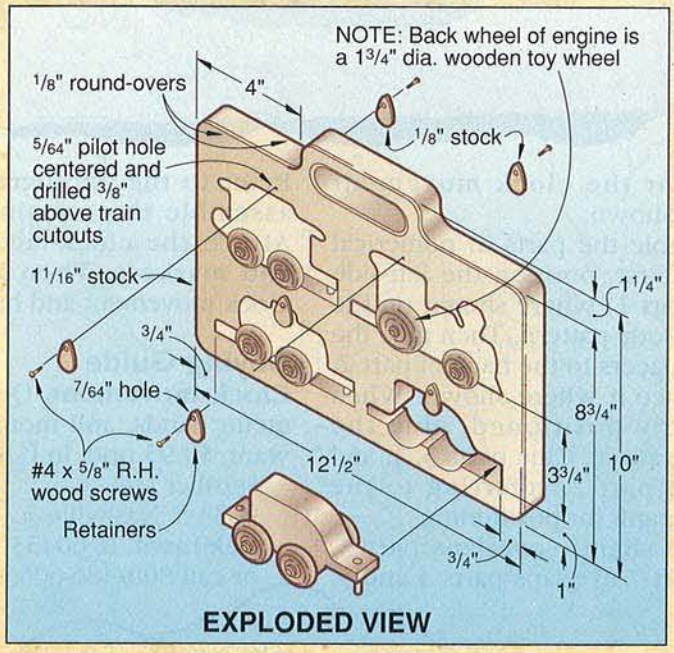
Project Design: © Quality Woodcrafters, Gus Stefureac
Illustrations: Kim Downing
Photograph: John Hetherington



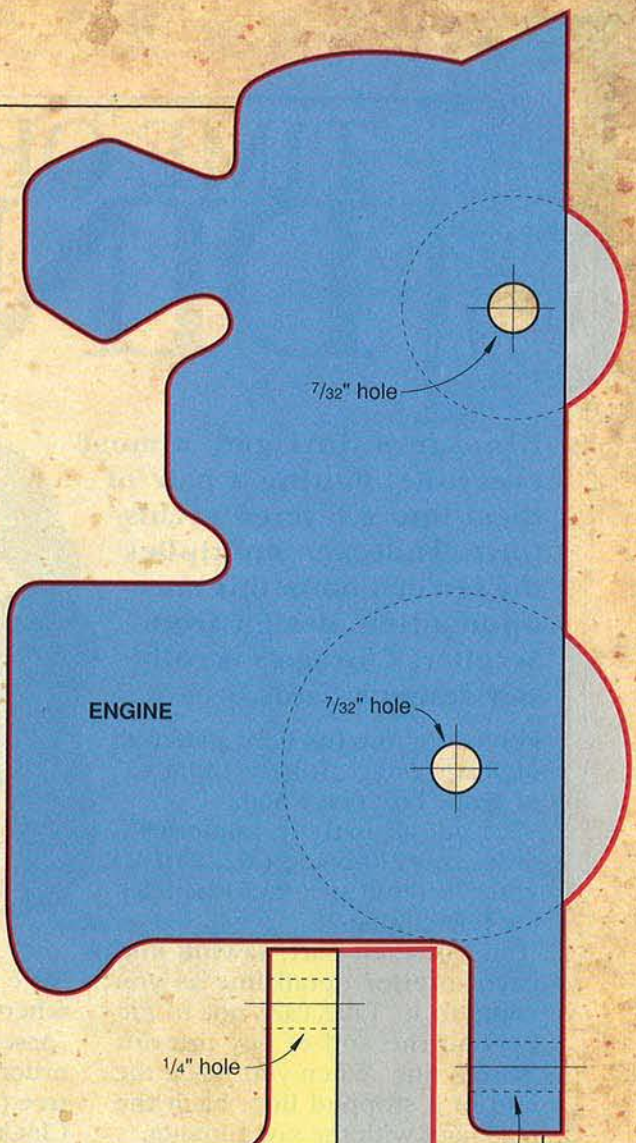
CAR ASSEMBLY

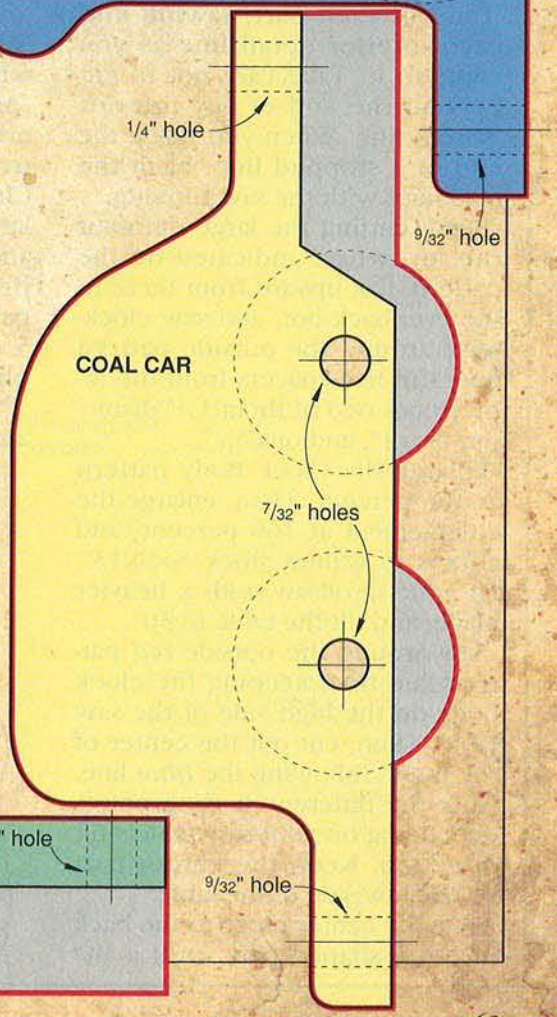


HANDLE DETAIL

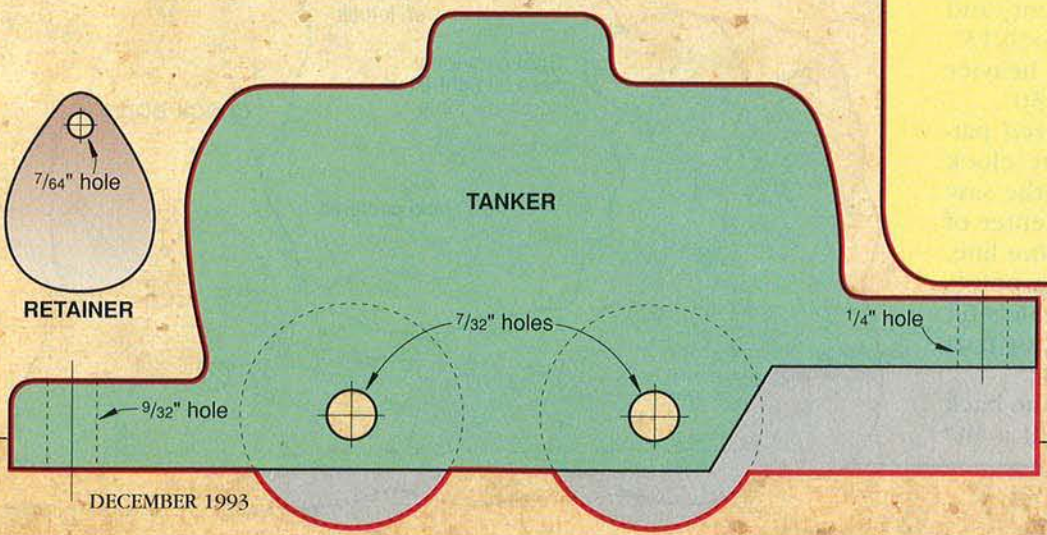


EXPLODED VIEW





RETAINER



TIME OF THE DINOSAURS

Dinosaurs intrigue almost everyone. Putting a pair of them into a layered prehistoric landscape multiplies the fascination in this once-upon-a-time design from Scroller, Chicago's scroll-saw-design wizards.

Photocopy the full-sized patterns *opposite page*. Adhere them to ⅛" Baltic birch plywood.

Cut out all parts in numerical order. A #2/0 blade (.022×.010" with 28 teeth per inch) handles the fine cutting.

Cut out each part, sawing into each interior detail line as you come to it. Take care not to cut beyond the end of any interior pattern line. When you reach the end of a stopped line, back the blade out with the saw running.

Begin cutting the large dinosaur (no. 6), where indicated on the pattern. Cut inward from there to the eye, back out, and saw clockwise around the outside pattern line. Cut five spacers from the ⅛" plywood, two of them 1½" diameter, two 1", and one 5/16".

Enlarge the Clock Body pattern at 166 percent. Then, enlarge the enlargement at 166 percent, and affix it to walnut stock ¾×9×13". Fit your scrollsaw with a heavier blade, and tilt the table to 30°.

Saw around the outside *red* pattern line first, keeping the clock body on the high side of the saw table. Then, cut out the center of the body, following the *blue* line. Note the different starting points depending on your saw table's tilt direction. Keep the cutout part on the low side of the table.

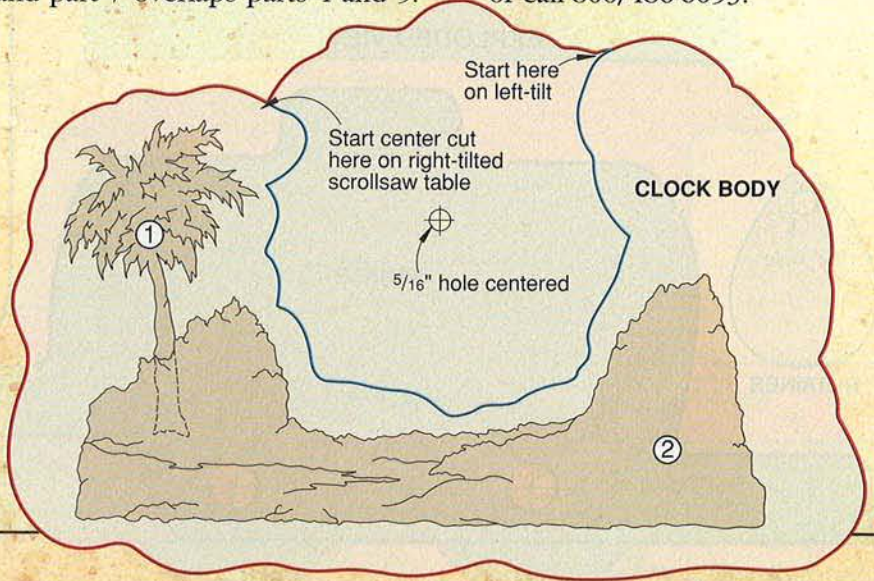
Glue the center piece to the back of the U-shaped part. Drill a 5/16" hole for the clock movement where shown.

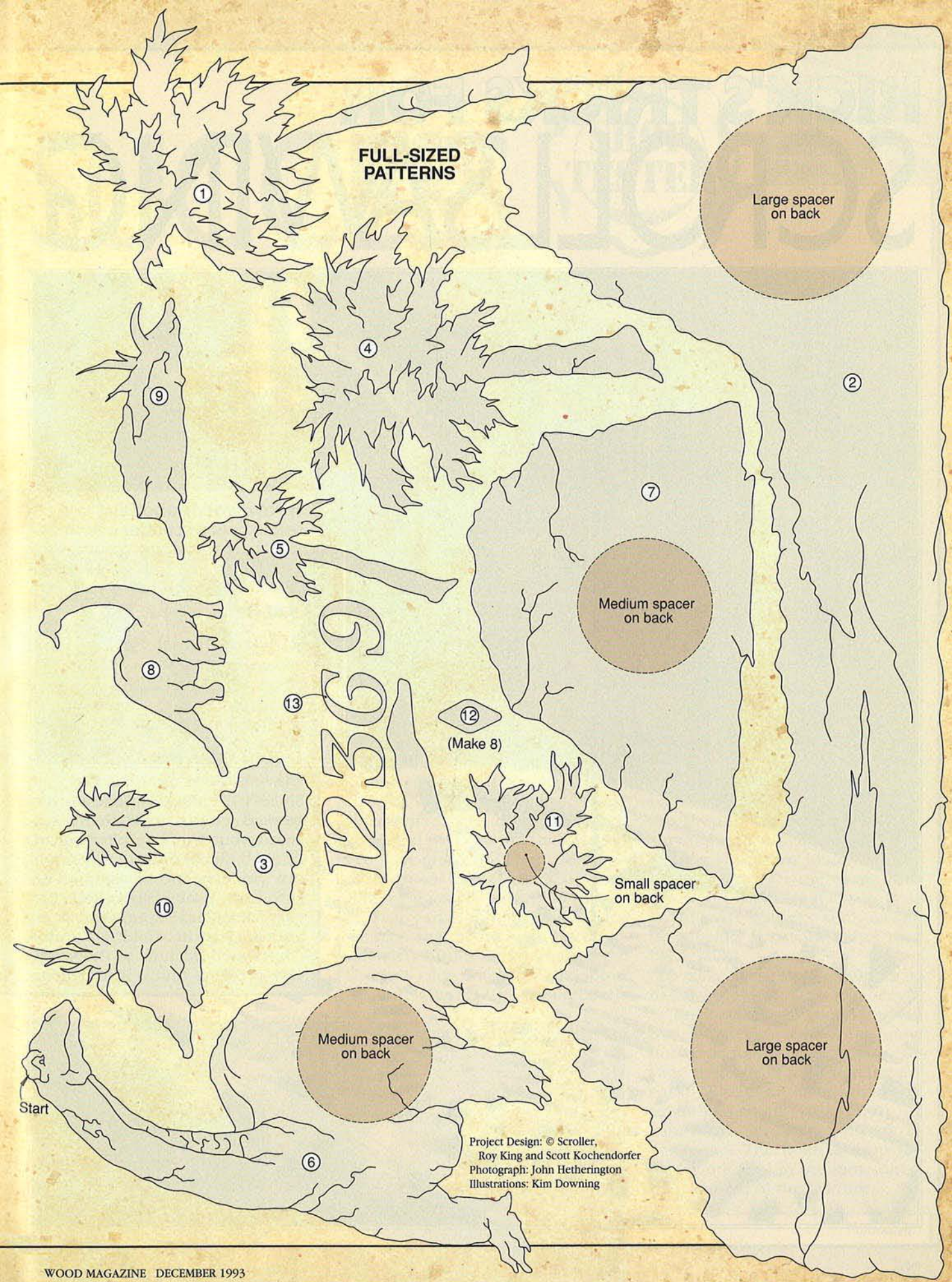
Assemble the parts in numerical order. First, position the left-side tree (part 1) where shown on the Clock Body pattern. Then glue the large spacers to the back of part 2, and place it where shown. When properly positioned, glue the parts in place. Glue parts 3, 4, and 5 onto part 2, referring to the photograph for positioning.

Part 6 slightly overlaps part 3, and part 7 overlaps parts 4 and 5. Refer to the photograph as you assemble the remaining parts. Attach the clock-face numbers and markers. Then install the clock movement and hands.

Buying Guide

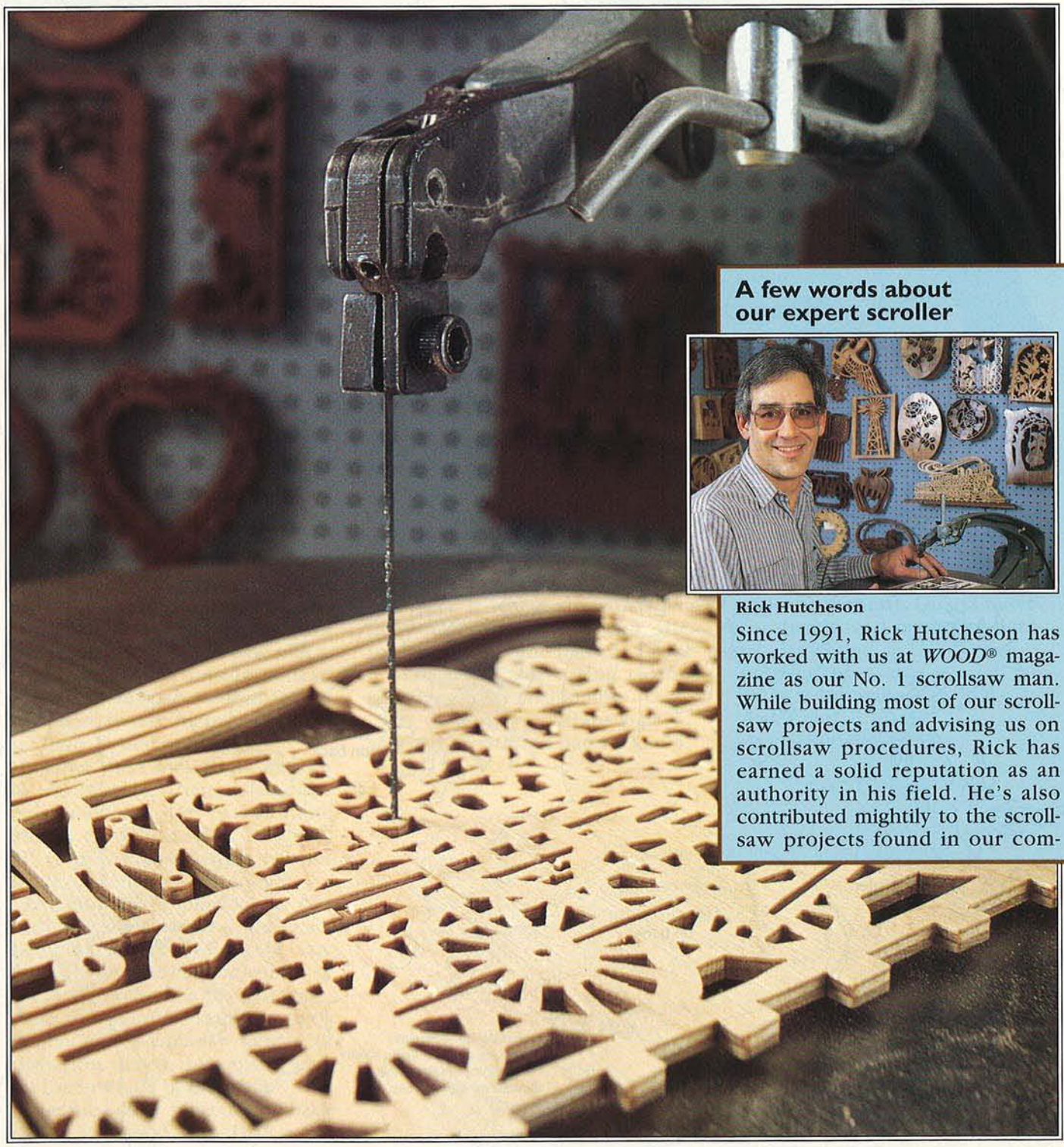
Clock movement. Quartz movement, hands, and mounting hardware, $9.95 ppd. in U.S. Write:
Scroller Ltd,
9033 S. Nashville,
Oak Lawn, IL 60453,
or call 800/486-6053.




FULL-SIZED PATTERNS
Large spacer on back
Medium spacer on back
Small spacer on back
Medium spacer on back
Large spacer on back
(Make 8)
Start
1 2 3 6 9
Project Design: © Scroller, Roy King and Scott Kochendorfer
Photograph: John Hetherington
Illustrations: Kim Downing

RICK'S TRICKS FOR SCROLLSAWING

Print this article



A few words about our expert scroller

Rick Hutcheson

Since 1991, Rick Hutcheson has worked with us at *WOOD*® magazine as our No. 1 scrollsaw man. While building most of our scrollsaw projects and advising us on scrollsaw procedures, Rick has earned a solid reputation as an authority in his field. He's also contributed mightily to the scrollsaw projects found in our com-

SUCCESS

SHOP TESTED

When we decided to pull together our best collection of scrollsawing tips, we made a beeline to Rick Hutcheson's shop in Grimes, Iowa. We figured anyone who spends thousands of hours every year cutting scrollsaw designs has to know a lot about the craft.

panion publications, *Weekend Woodworking Projects*®, *Decorative Woodcrafts*®, and *Super Scrollsaw Patterns*®. When he's not working with us, Rick creates scrollsaw projects for his gift shop, or cuts unfinished pieces for people more interested in painting than sawing. To keep up with the demand, he spends 10–12 hours daily with his scrollsaws, putting out more work than most of us can produce in a week. No wonder a major manufacturer of scrollsaws supplies Rick with test models before introducing them to the market.

Although Rick saws his way through most projects in just a few minutes, he recently spent 3½ hours—a record-long time for this scrollsaw speedster—on a single workpiece. The project was the intricate locomotive (shown *left*), with more than 400 inside cuts. Whew!

WHAT YOU NEED TO KNOW ABOUT BLADES

Three blades will see you through most projects

For nearly all of his work, Rick uses these blades from the Olson Saw Company:

•No. 5 (Olson no. 446-F)

"My choice (the no. 5) for ¾" pine, oak, walnut, and most other woods," Rick told us. "I've tried other blades, but none give you more blade life for the dollar."

•No. 2 (Olson no. 443-F)

I use this blade for cutting thin plywoods such as ⅛", 3⁄16", or ¼" baltic-birch plywoods," Rick said. "I cut a stack of plywood about ¾" thick, and with the no. 2 blade, I get good detail and a minimum of feathering on the bottom of the workpiece."

•No. 9 (Olson no. 450-F)

"This relatively thick and wide blade doesn't turn as tightly as the other two," Rick explained, "but you need its extra strength for sawing woods more than 1" thick. Primarily, I use it for 1½"-thick pine and fir. I can run this blade at 2000 rpm without a problem—the no. 5 blade heats up and breaks at speeds over 1750 rpm.

"You can buy other specialty blades that work well, such as jewelers blades for cutting metals. I don't care much for the spiral blades—they cut in all directions as advertised, but leave a rough, bandsaw-like cut.

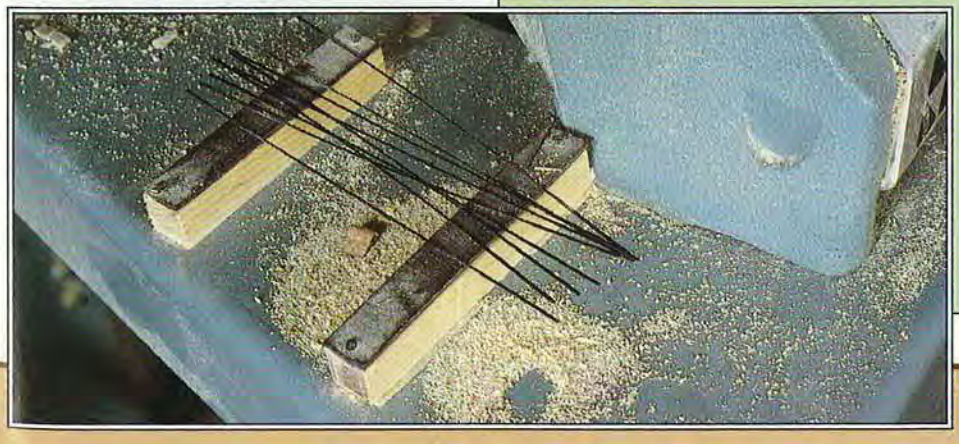
"You also can buy reverse-tooth blades with a few teeth at the bottom end that point up. This feature may reduce fuzzing on the back of a workpiece, but I've found that the reversed teeth slow my cutting rate by 30 to 40 percent. I'm usually better off by cutting fast and sanding the feathered grain later. But, these blades do work well on plywood projects with cuts requiring tight turns. That's because plywood feathers worse than solid woods."

Keep your blades nearby and handy

There's no getting around it: Blades will break or just become dull as you work on a scrollsaw. "I figure on a blade life of about 20 minutes maximum during hard cutting. Then, I need to change blades," Rick told us.

To keep these interruptions from slowing you down, you need to keep a supply of blades within easy reach. Over the years, Rick has found that home-made magnetic-strip holders such as the ones *below left* work better than blade racks.

To make these simple helpers he nails two 4"-long strip magnets to ½"-thick scraps of wood (you can buy magnetic strips from many hobby or hardware stores, or salvage them from junked refrigerators). Then, he attaches these assemblies about 3" apart near the base of his scrollsaw with epoxy or screws. The holders keep the blades oriented in the same direction, and out of the sawdust.



Continued

SCROLLSAWING SUCCESS

HOW TO ADD COMFORT AND PRODUCTIVITY TO YOUR SCROLLSAWING

Take a seat

As shown in the photo on *page 66,* Rick does his sawing from a sitting position. "Your body must be relaxed so you can concentrate on your hands and arms."

Consider a foot switch mandatory equipment

"I like to keep both of my hands free to control the workpiece," Rick told us, "and I haven't found a scrollsaw with a conveniently placed on/off switch. So, I use a foot-operated on/off switch. Once you try one, you'll be hooked."

Wrench padding takes the pain out of blade changes

Just as the grip on a baseball bat or golf club will help take the sting out of hitting a ball, wrapping the handle of a wrench will cushion the sudden snap of loosening a blade-clamp screw. Rick either wraps the handle with electrical tape, or slides a scrap of plastic tubing onto the handle.

PATTERN POINTERS TO KEEP IN MIND

Build your own collection of pattern templates

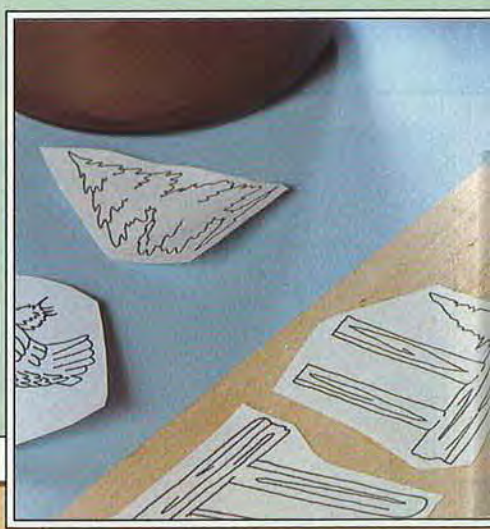
Rick makes templates for many of his projects, even if he builds only two or three units. "I'll probably make the project again in the future," Rick said, "and templates are easy to trace around." He prefers plastic laminate for template material because it's thin and durable. "You can fit a lot of these inexpensive templates into a small box, and I've never worn one out," Rick added.

To keep things organized, Rick makes note of the source of the design on the back of the template. Then, he can refer to the source if he needs to brush up on the fine points of the project.

If you have a large collection of templates, Rick suggests you number them. And, keep a numbered listing of each template in a notebook, with comments about how long it took to complete the project, tricky cuts, or other construction pointers.

Nothing tops rubber cement for adhering patterns

I've tried sprays, tape, and other adhesives, but nothing works better than rubber cement," according to Rick. "It's cheap, fast, and holds the pattern firmly. It goes on without the hassle of tapes or the over-



For good results you need to see your cut

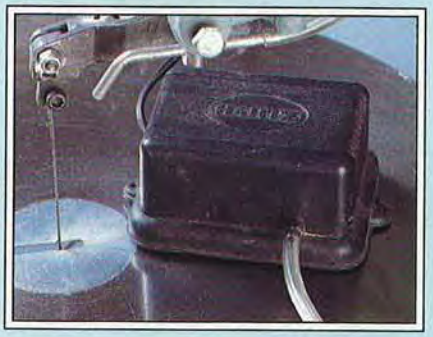
Nearly all scrollsaws come with a blower for keeping sawdust off your cutline. These work fine if you keep the blower nozzle near the point where the blade engages your workpiece, but Rick likes to keep the blower up and away from the workpiece. Most blowers still work at this height, but because they're powered by the up-down motion of the saw arms, they become useless when you slow down the saw speed.

To solve this dilemma, our intrepid scroller bypasses the saw's blower and hooks the blower nozzle to his air compressor via plastic tubing and a valve. If you don't have a compressor, Rick suggests that you hook the nozzle to an aquarium pump as shown *right*. (We placed the pump on the saw table for clarity's sake only. You should position your pump on the saw stand or another nearby surface that's out of your way.)

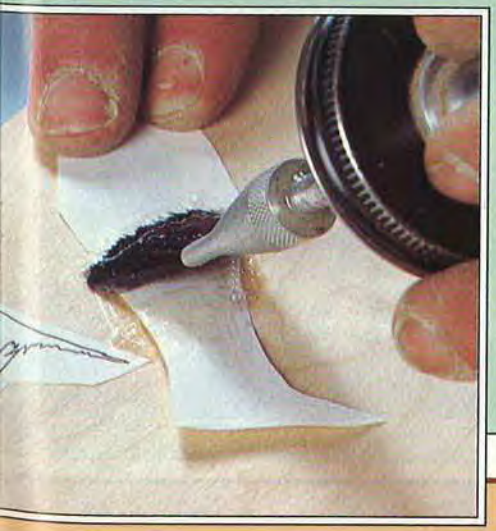
The easiest way to square up your saw table

Your saw's blade must be 90° to the saw table for most operations. Otherwise, you won't cut square edges, and will have difficulty making tight turns.

Here's a quick way to ensure square cuts. Make a ⅛"-deep cut into the edge of a 1½"-thick piece of stock. Swing this piece around so the cut faces you and place the cut behind the blade as shown *right*. The back of the blade should fit into this kerf. If not, adjust your saw table accordingly.



spray of aerosols, and cleans up in a jiffy. (See *page 71* for a nifty cleanup method.) I also work with a lot of tiny pieces, and sprays would blow them right off my workbench." For economy, Rick buys the cement in gallons and transfers it to jars.



Buy no. 3 pine instead of no. 2

"I can buy no. 3 pine for about half the cost of no. 2, and for most small projects I get nearly as many workpieces out of the no. 3 stock as I get out of the no. 2 wood," Rick said. "I'll trace the large workpieces first, and then trace the smaller pieces onto the remaining clear areas."

As shown on the *left* side of the photo *right*, no. 3 pine has more knots, but you can work around these defects to utilize most of the board. In this example, a no. 3 board costing 50 percent less than the no. 2 board yields the same number of pieces in only about 30 percent more space.

Rick cautions that this thrifty measure may backfire if you're working with large, knot-free cutouts. In that case, buy boards with large clear areas. You'll find the extra dollars well spent.

Continued

SCROLLSAWING SUCCESS

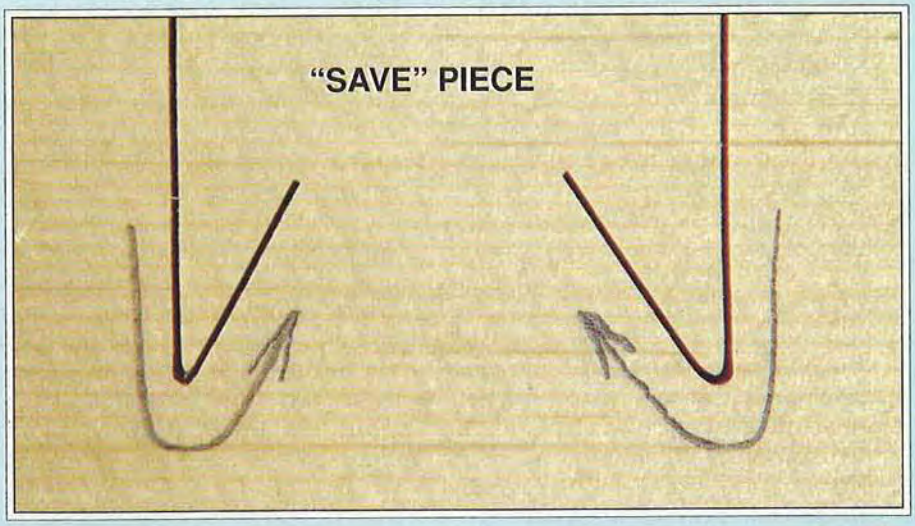
SECRETS OF SUCCESSFUL CUTTING

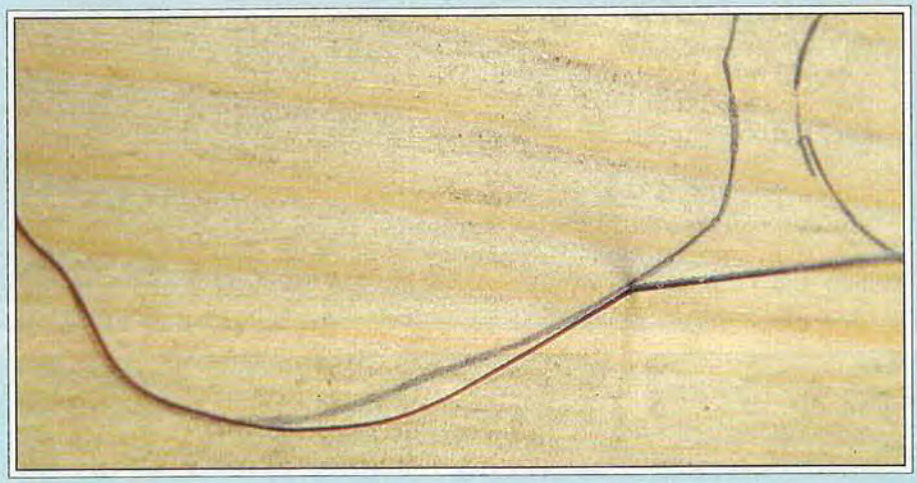
Keep your "save" piece to the right side of the blade

Because most manufacturers make scrollsaw blades by stamping them from thin sheets of steel, the teeth have a burr on their right side (with the teeth facing toward you and pointed down, as when secured in a saw). Because of this built-in burr, Rick keeps his "save" piece (the kept or project piece) on the right side of the blade. "I get more control over the cut this way, and I can make tighter turns," he told us.

As shown in the photo *right, top*, Rick attempted to make the same cut with the save piece to the right and left of the blade, as shown by the cutting-direction arrows. With the save piece to the left of the blade, he had to take a wider turn, and removed more material at the turning point.

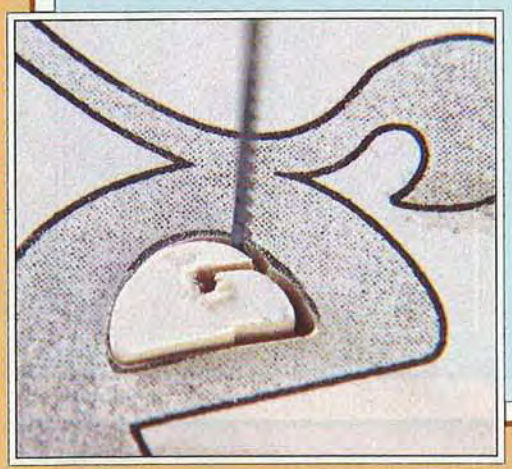
The tiny burr also creates "feathering" of the wood fibers on the backside of the saved pieces. But, this feathering cleans up quickly later (see the *next page*).





Use your blade like a rasp

If possible, it makes sense to start a cut at a corner, such as the bottom of a heart or the points of a diamond. This helps prevent irregular cut marks that crop up when you enter and exit a cut on a continuous line. But, sometimes you have to start a cut in the middle of a line. Here's another time when Rick takes advantage of the burr on the right side of the blade.



As shown on the *previous page, bottom left,* he uses the blade's right side like a rasp to smooth the start/finish point of the cut. To do this correctly, use the blade to sand, not cut, through the irregularity. "Let the burred side of the teeth do the work, and use the side of the blade as a guide to keep you from cutting into your save piece," Rick says. " If you try to cut away the irregularity you just may make it worse." This technique takes a second or two, and saves you from sanding or rasping by hand later.

It's no big deal if you go off the pattern line

For most designs, it's not critical that you follow the pattern line exactly. If you wander off the line, try to smoothly get back to the line as shown at *left*. "Nobody notices that I went off the line after I remove the pattern from the project," Rick said. "But, they may notice it if I try to correct by backing up and recutting.

"Of course, how far you can wander off the line depends on the size of the project. I can wander ¼" off the line on a 10"-wide apple and nobody will notice, but wandering ¼" on a 1" apple would look terrible."

Pile up time savings by stack-cutting

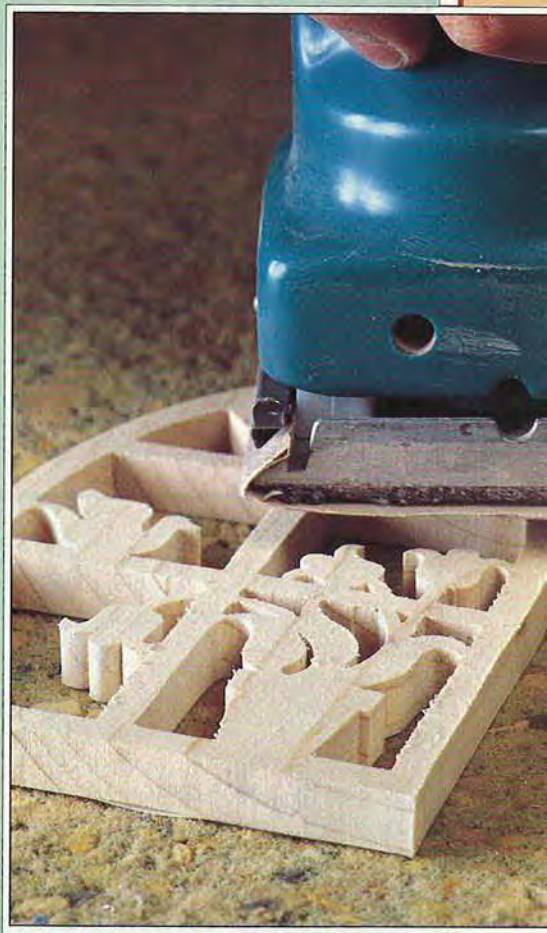
You can make multiple projects from thin materials in a snap by stack-cutting them as shown *left.* Rick stacks his thin materials to a height of ¾", and then adheres a pattern on top. Next, he secures the stack together with at least two #3 finish nails in a waste area.

"You can't allow the nails to stick out the bottom of the stack," Rick cautions. "So, I hold the stack on a steel plate when I drive the nails. This way, the plate peens the ends of the nails, and materials as thin as 1/16" won't fall off the bottom of the stack.

TRUSTWORTHY TRICKS FOR CLEANING UP PROJECTS

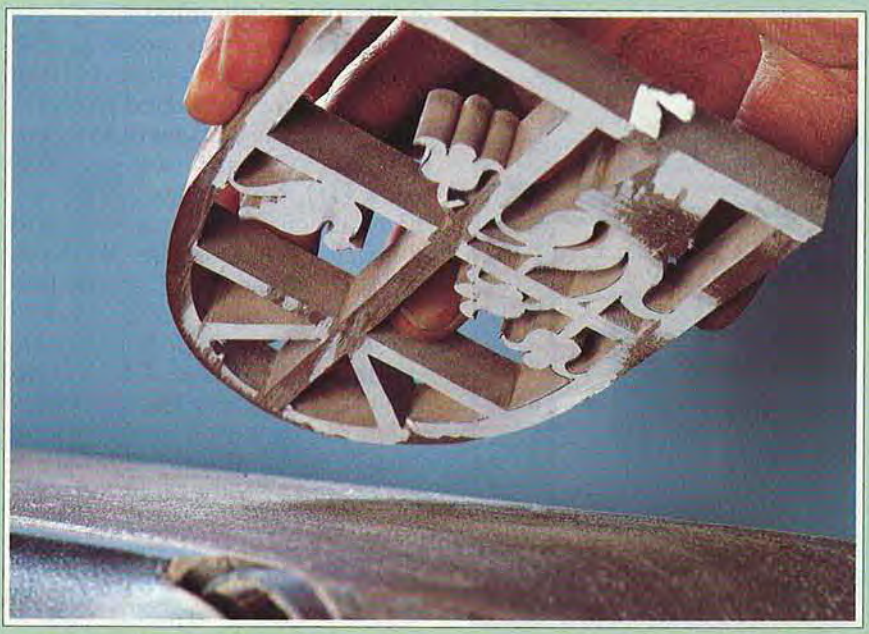
Fuzz-busting for first-rate looks

To remove the inevitable feathered grain on the back of a project, Rick places the workpiece facedown on a carpet pad and runs a finish sander over the back as shown *right*. A few passes with 120-grit abrasive cleans up the surface. The carpet pad holds the workpiece in place, and prevents marring on the faceside. On large projects, Rick may even use a stationary belt sander to complete this task.



A one-step way to clean the front of your project

"Rather than peel off my pattern, I save time and get better results by removing it on a stationary belt sander," Rick said (see photo *below*). "The paper does the same thing as pencil lines marked across a board—it shows you the high and low spots as you sand. When you sand away all of the paper, you know the surface has no more valleys and ridges." Rick keeps a crepe-rubber stick nearby to clean debris off the sanding belt.



Written by Bill Krier with Rick Hutcheson Photographs: Jim Kascoutas

CRAFT A NUTCRACKER IN THE ORIGINAL STYLE

GREGORY THE

First, build Gregory's body

Enlarge the half-sized patterns on *pages 74–75* to full size. Then, transfer the body's back and side views to the 2½×2½×3¾" block (A). Bandsaw the body block to shape. Contour the body by tilting the bandsaw table to 45° and take off the corners. (See the shaded areas on the Back and Side View patterns.) Next, saw out the body cavity and the channel in the back. (See the Body detail.)

WE USED THESE TOOLS AND SUPPLIES

Stock (See the Bill of Materials)
Bench knife
Bandsaw
Drill/drill press
Small parts
- ¼"×12" dowel rod
- ⅞"×1¾" dowel (or preturned milk can)
- three 3/16" toy wheel axles
- No. 6 × ¾" brass nail
- Craft fur
- Braided ribbon
- Sandpaper
- Scrapwood
- Woodworkers glue

Finishing supplies
- Black, blue, brown, red, yellow, and white acrylic paints

Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A Body	2½"	2½"	3¾"	P	1
B Jaw lever	1"	3⅛"	7"	P	1
C Head	2½"	2½"	2½"	P	1
D Hat	3"	3"	3"	P	1
E Arm	¾"	1¼"	4½"	P	2
F Leg	1"	1⅝"	5"	P	2
G Base	¾"	3½"	3½"	P	1

Material Key: P-Pine (or other easily worked wood)

Print this article

Roughly round the body block with a bench knife—don't carve on the belt. Drill a ¼" hole ½" deep on both sides of the cavity in the top half of the body. (See the Exploded View drawing.)

Transfer the jaw lever pattern to the 1×3⅛×7" stock (B) and saw out. With a ⅞" Forstner bit, bore a ⅛"-deep hole on the jaw. (See the Exploded View drawing).

Now, heads up everybody

Transfer the side-view pattern for the head onto the 2½×2½×2½" block (C), and saw the profile. Draw a 2½"-diameter circle on top of the face block, beginning and ending at the flat area of the face, then saw along the line. Sketch the nose and remove wood on both sides. Tilt the bandsaw table to 45°. Saw off the shaded areas of the face and at the back of the head. (See the Front View and Side View drawings).

Carve the face features. Then, refer to the front view of the face and drill ¼" eye holes 13/16" deep. At the center of the circle on top of the head, drill another ¼" hole ½" deep, and two more of the same size in the bottom of the head. (See the Exploded View).

To make the hat, mark the centers of each end of the 3×3" block (D). Now, draw a 2⅞"-diameter circle on one end and saw it to round on the bandsaw, with the table tilted 5°. In the bottom center of the newly formed 2½"-diameter end, drill a ¼" hole ½" deep and glue in a 1" section of ¼" dowel. For the cockade, notch the back side of a 1¾"-long section of ⅞" dowel as shown in the Exploded View drawing.

Next come the arms and legs

Transfer the arm and leg patterns to E and F, and saw out. Round their edges (refer to photo, *opposite page*) and shape with the bench knife (except cuffs).

Drill ¼" holes ½" deep in the top and bottom of each leg and in the inside top of each arm, as in the Exploded View drawing.

Get Gregory ready to march

Sand all the parts. Then, cut 1"-long pieces from a ¼" dowel and fit them into the head, body, leg, and arm holes. (See the Exploded View drawing.) Next, dry-fit hat and body parts to check matchup of dowel holes. (We suggest using dowel centers for this.) Glue hat, head, and legs in place on body.

Position the jaw lever in the body cavity so that the front of the jaw aligns with the bottom of the face and flush with the chest. Holding the parts in place, use a 3/32" bit (or a bit the size of the nail) to drill a hole through the left side of the body, the jaw lever, and into the right side of the body. Remove the head and cut a no. 6 finish nail to 2" for the jaw lever hinge pin. (Don't install.)

Paint on the base colors of the hat, head, jaw lever, body, arms, and legs. Then, glue the arms in place, and insert the hinge pin and glue in place. Make the base and attach the nutcracker.

And now for the details

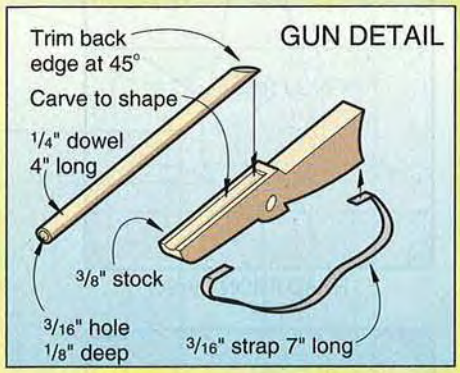
From a length of ¼" dowel, cut nine slices 1/16" thick for buttons. Paint them and let dry. Paint the toy wheel axle hubs for the eyes.

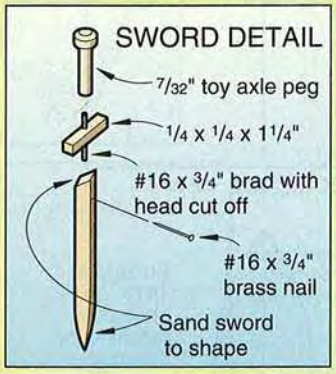
Cut a ¾" square buckle from ⅛"-thick scrap and paint. From scrap, shape, assemble, and paint the gun and sword as shown in the Gun Detail and Sword Detail drawings and patterns.

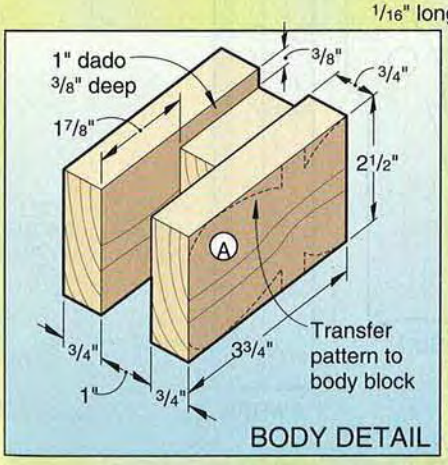
Now, finish painting, glue and attach the accessories, and add finishing touches, such as eye and face details, and craft fur.

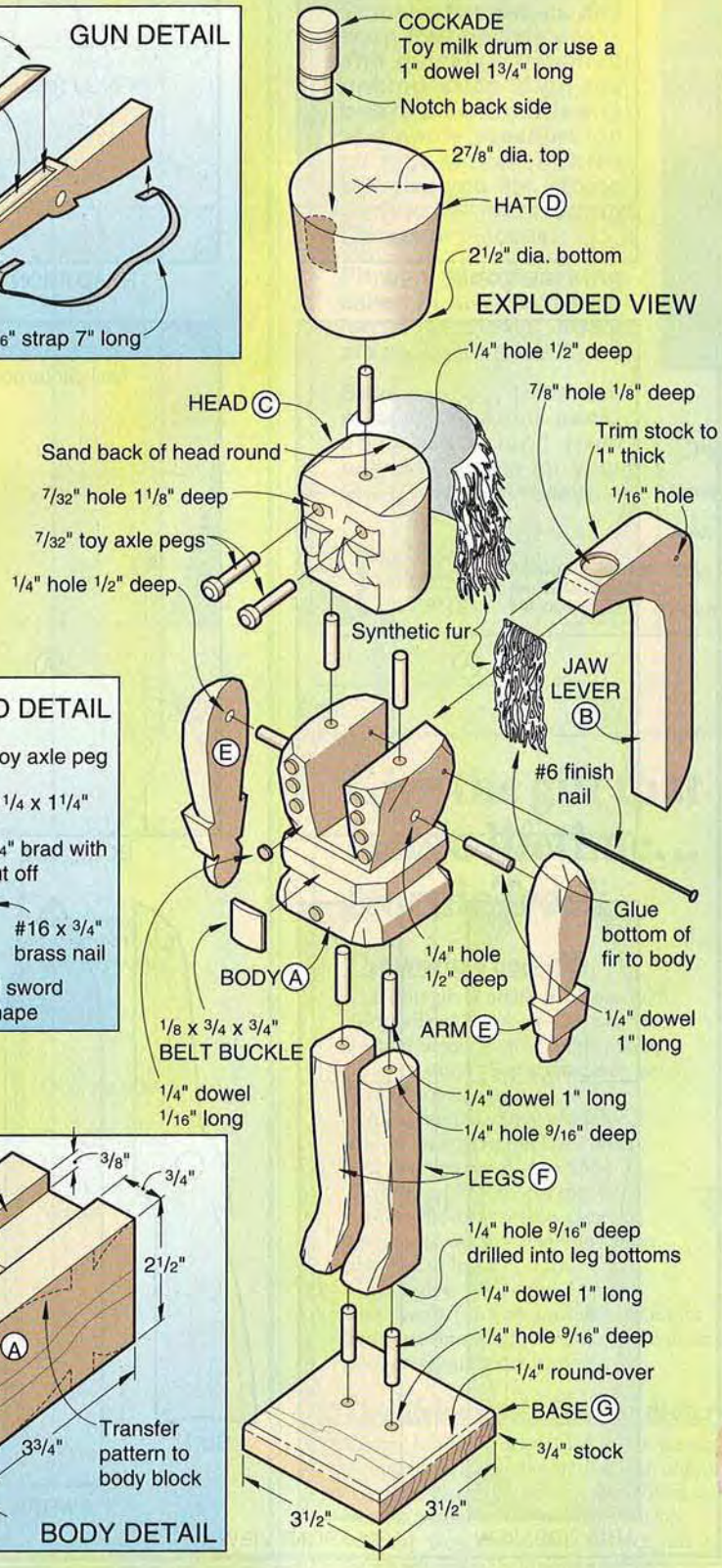
Design: Glenn Crider
Drawings: Jamie Downing
Photograph: John Hetherington

GRENADIER


GUN DETAIL
Trim back edge at 45°
Carve to shape
1/4" dowel 4" long
3/8" stock
3/16" hole 1/8" deep
3/16" strap 7" long


SWORD DETAIL
7/32" toy axle peg
1/4 x 1/4 x 1 1/4"
#16 x 3/4" brad with head cut off
#16 x 3/4" brass nail
Sand sword to shape


1" dado 3/8" deep
3/8"
3/4"
1 7/8"
2 1/2"
A
3/4"
1"
3/4"
3 3/4"
Transfer pattern to body block
BODY DETAIL


COCKADE
Toy milk drum or use a 1" dowel 1 3/4" long
Notch back side
2 7/8" dia. top
HAT D
2 1/2" dia. bottom
EXPLODED VIEW
1/4" hole 1/2" deep
7/8" hole 1/8" deep
HEAD C
Trim stock to 1" thick
Sand back of head round
1/16" hole
7/32" hole 1 1/8" deep
7/32" toy axle pegs
1/4" hole 1/2" deep
Synthetic fur
JAW LEVER B
E
#6 finish nail
Glue bottom of fir to body
BODY A
1/4" hole 1/2" deep
ARM E
1/4" dowel 1" long
1/8 x 3/4 x 3/4" BELT BUCKLE
1/4" dowel 1/16" long
1/4" dowel 1" long
1/4" hole 9/16" deep
LEGS F
1/4" hole 9/16" deep drilled into leg bottoms
1/4" dowel 1" long
1/4" hole 9/16" deep
1/4" round-over
BASE G
3/4" stock
3 1/2"
3 1/2"

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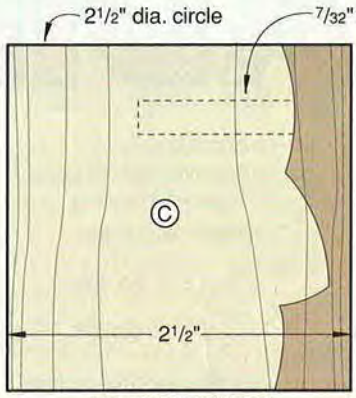
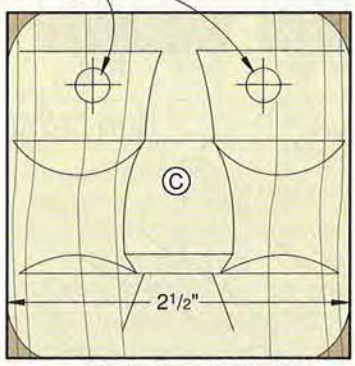
Nutcracker

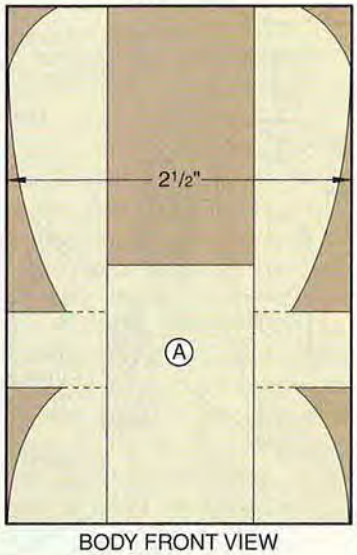
Continued from page 73



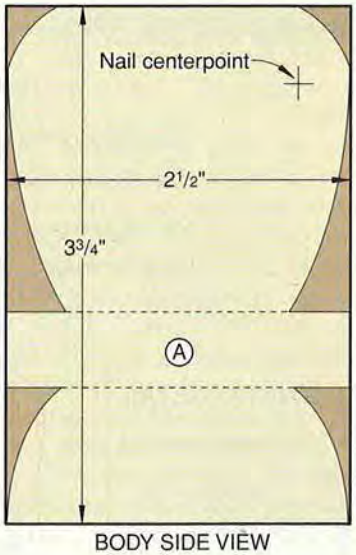
HEAD SIDE VIEW



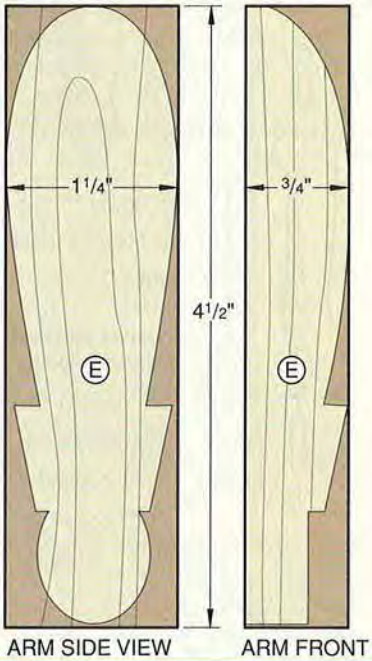
HEAD FRONT VIEW



BODY FRONT VIEW

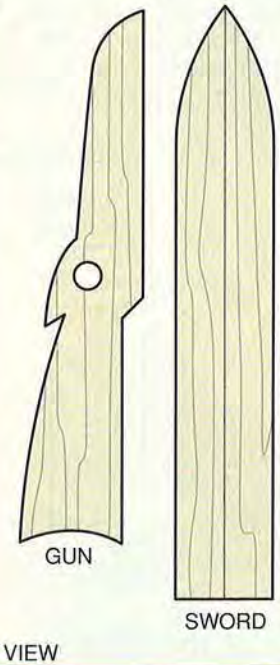


BODY SIDE VIEW

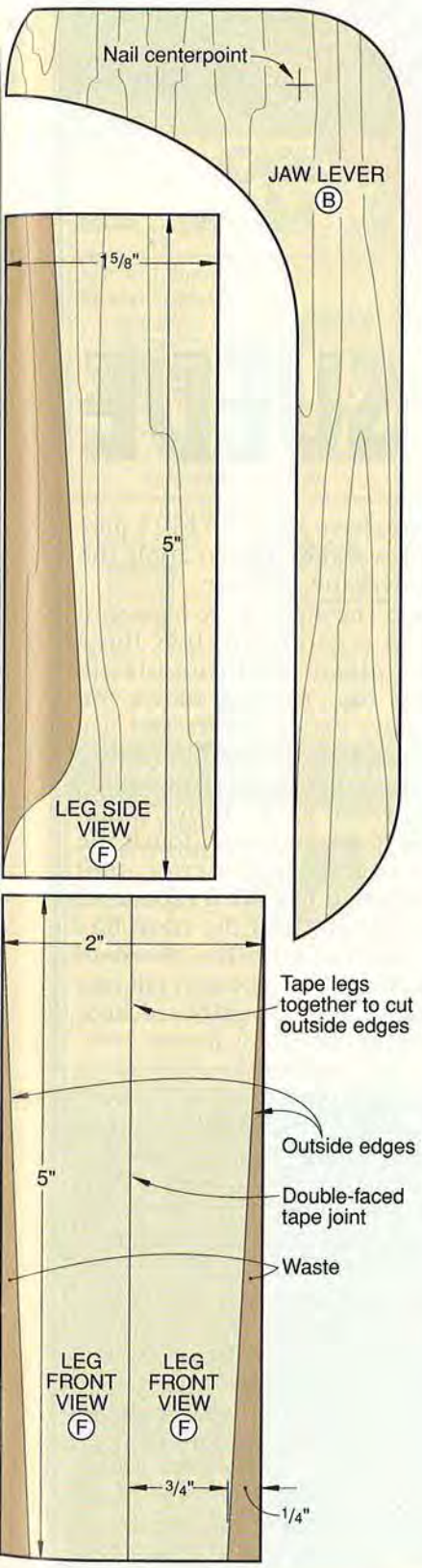


ARM SIDE VIEW

ARM FRONT VIEW



Enlarge at 141% on photocopy machine for full-sized patterns



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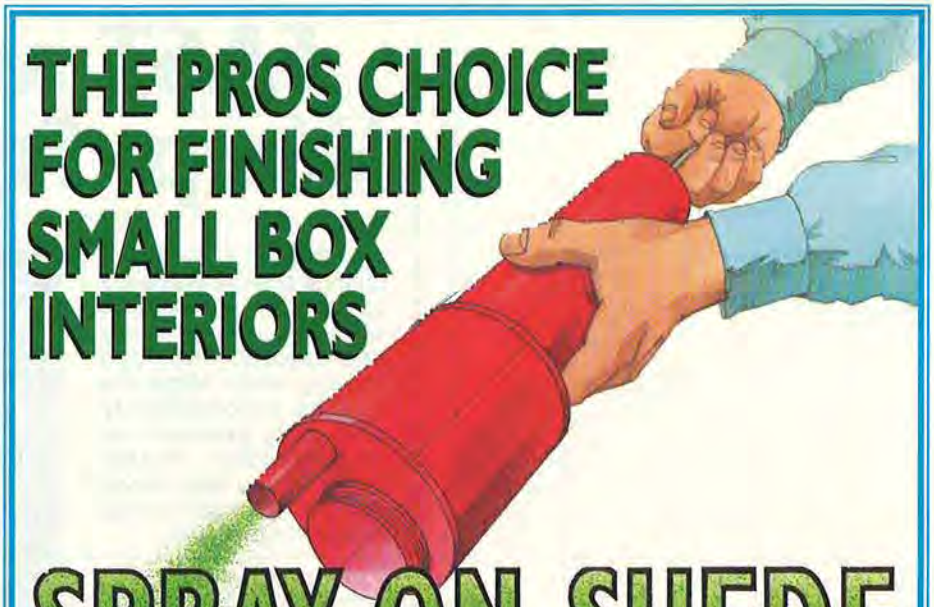

SPRAY-ON SUEDE

Say good-bye to unsightly seam lines of ill-fitting pieces of felt for lining small box interiors. And say hello to a better-looking alternative, DonJer's Suede-Tex, a fibrous, spray-on material. Just follow the simple method described below to apply a professional-looking lining to such finely crafted boxes as the heart-topped jewelry box on *page 48*.

Note: To try this procedure, you'll need the felt-like flocking fibers, adhesive, and the flocking gun making up the kit. See the Buying Guide at *right* for our source.

How to apply Suede-Tex to the "Heart-Topped Box"

1 To apply the fibers, first load the gun no more than two thirds full of flocking fibers. A less-than-full gun allows for better propelling of the fibers from the gun. Note that the pump-action gun resembles the kind used to apply dusting powders in gardens.

2 Mask off all but the interiors of the box base and trays. Apply a wet, even coat of DonJer's color-matched adhesive on the unmasked areas using a ½"-wide natural bristle or foam brush. Once you have applied the adhesive, you have about 10 to 15 minutes of working time to apply the fibers over the adhesive.

3 Place the heart-box base and trays in a cardboard box lined with a clean, dust-free plastic garbage bag. The bag allows you to collect excess fibers and use them again in your next project.

4 Thoroughly coat all the adhesive-covered areas. Don't skimp on the fibers and don't touch the fiber-covered box interior until the adhesive has dried (about 12 hours). Then, turn the heart-box base and trays upside down to allow the excess fibers to fall into the plastic-lined cardboard box. Gather up the excess fibers.

Buying Guide

Flocking fibers. One 3-oz. bag of Suede-Tex fibers plus color-matched brush-on adhesive, $14.95 ppd. (Special price for *WOOD*® magazine readers). Available in bright red, royal blue, kelly green, and 28 additional colors. Each order will include a brochure with detailed application instructions. Add $35 for the flocking gun. DonJer Products Corp., Ilene Court, Bldg. 8W, Belle Mead, NJ 08502, or call 800/336-6537 to order.

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When I first encountered CMT router bits, some of their features were so visibly obvious that I knew immediately they would have a very positive impact for all woodworkers. The excellent workmanship and innovative design engineering is not just apparent, it's conspicuous!

Extended use of CMT bits gives testimony to their high grade fatigue-proof steel shanks and their edge holding carbide. Once you try CMT tools, you will agree that they deserve all the applause they are receiving from woodworking journals and woodworking experts worldwide.

Patrick Spielman, Author
Router Basics, Router Handbook, Router Jigs and Techniques

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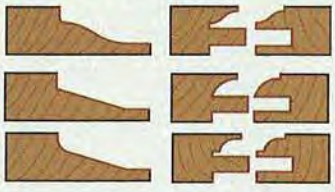

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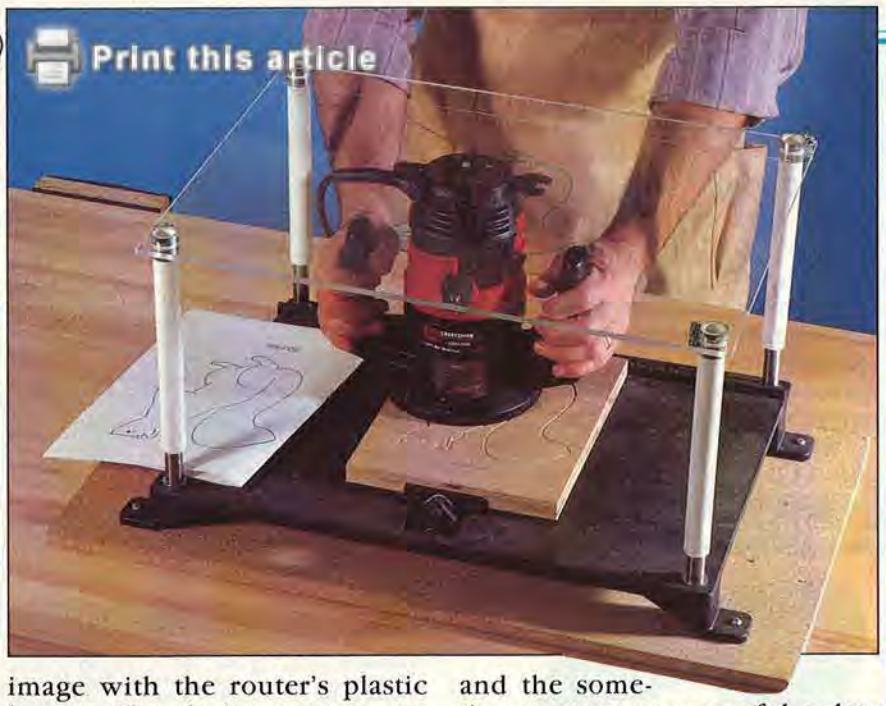

New accessory helps you "draw" with a router

I have little talent for freehand drawing or routing, but a new product from Sears helped me freehand-rout some great-looking signs. The Rout-A-Copier consists of a 12×20″ plastic base with a screw-operated clamp for holding workpieces of any length and up to 11″ wide during machining. It also has a clear-acrylic plate supported above the base by four adjustable posts.

To rout your sign, first attach a small, self-adhesive, plastic button to the top of your router, centered above the tool's arbor. Then, hold or tape the design under the clear plate, and trace the image onto the acrylic surface with a washable marker. Secure the workpiece onto the base, place your router between the clear plate and base, and follow the marked image with the router's plastic button. The device accepts any router, and you need to supply a groove-forming router bit.

I made a variety of signs that included letters and symbols with good success. I had to practice to get used to the feel of the router and the sometimes-uneven pressure of the clear plate on top of the router.

—Tested by Bob McFarlin

Sears Craftsman Rout-A-Copier, about $50. Call or visit your local Sears store.

Continued on page 83

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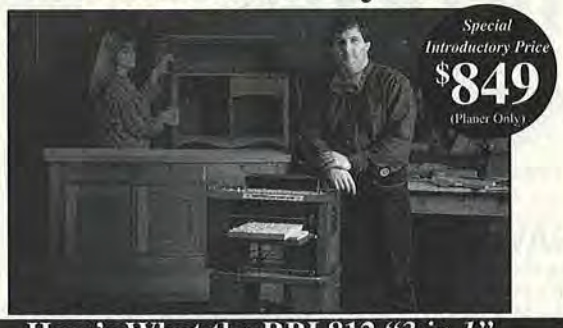

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PRODUCTS THAT PERFORM

SHOP TESTED

Continued from page 80

Hurray! An affordable faceplate system

I often have as many as five or six wooden bowls in various stages of completion lying around my workshop. That's because many times I turn a green bowl to a certain thickness, then remove it from the lathe and allow it to dry as I work on another bowl. I prefer to leave the faceplate attached to each bowl while it dries, but the cost of owning multiple faceplates can really add up.

Recently, I found a product that helps me save money in this area. The Read Faceplate System has a hub with two threaded ends—one male, one female—like the one *above*. One end of the hub screws onto your lathe's spindle. The other end threads into interchangeable 4"-diameter plates. With this setup you can leave the hub on your lathe and the plate on your bowl as you change from working on one bowl to another.

The system worked without a hitch in my trials. You can buy hubs to fit most major brands of lathes. Each hub has a threaded center hole for accepting a double-threaded screw (provided with each hub) for converting the hub to a screwchuck.

—Tested by Marlen Kemmet

Read Faceplate System, $28.95 per hub and $37.50 for a set of five faceplates. Add $5 for shipping. From Craft Supplies, 1287 E. 1120 S., Provo, UT 84601. Call 800/551-8876 or 801/373-0917.

Continued on page 84

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PRODUCTS THAT PERFORM — SHOP TESTED

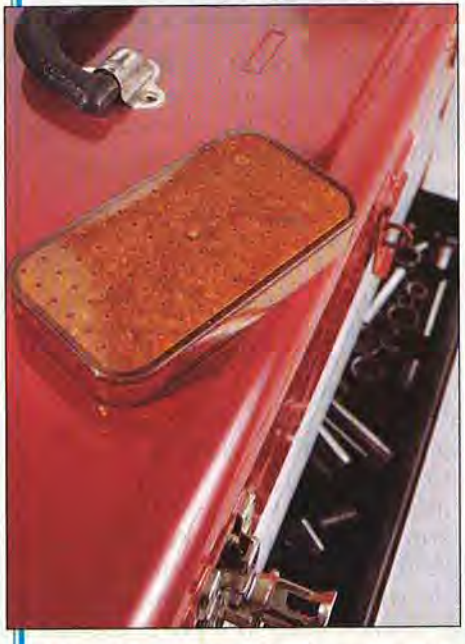
Continued from page 83

Pocket-size product keeps rust off tools

Many of us who store our tools in damp places such as basements and garages share a common challenge: how to keep our steel and iron tools from rusting. In my search for a solution to this problem, I recently came across the Microwaveable Air Dryer, a plastic container slightly smaller than a pack of cigarettes that holds moisture-absorbing beads.

I found the product works effectively when placed inside an enclosed area such as a toolbox. In this environment it draws moisture from the trapped air and inhibits rusting. Depending on the humidity level, you need to periodically remove moisture from the Air Dryer by placing it in a microwave oven for a minute or two. I'm going to put one in each of my toolboxes.

—Tested by Chuck Hedlund



Microwaveable Air Dryer, catalog no. 03Q52, $9.95 plus $4.50 shipping for orders up to $25, from Woodcraft Supply, 210 Wood County Industrial Park, P.O. Box 1686, Parkersburg, WV 26102. To order call 800/225-1153. For more information call 800/535-4482.

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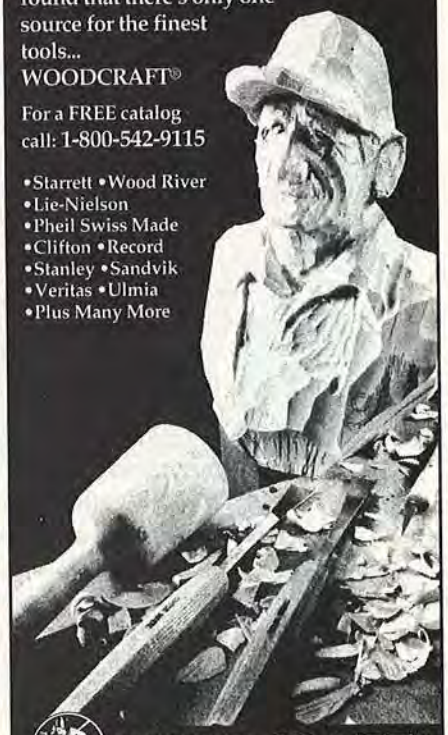

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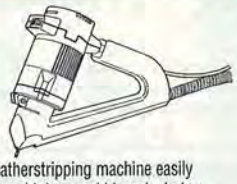

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37.....$1.00	210.....$1.00	550.....$1.00	965.....$2.00	1262 .....Free	1910.....$5.00	2185.....$1.00
44 .....Free	320.....$2.00	570 .....Free	1002 .....Free	1285 .....Free	1960.....$1.00	2190.....$2.00
48.....$1.00	345.....$3.00	592.....$1.00	1040.....$1.00	1310 .....Free	1976.....$1.00	2191 .....Free
49 .....Free	401.....$2.00	598.....$1.00	1075.....$1.00	1315 .....Free	1985.....$1.00	2250 .....Free
57 .....Free	465.....$1.00	615.....$6.00	1085.....50¢	1321 .....Free	1987.....$1.00	2335 .....Free
78.....$1.00	485.....$2.00	710.....$1.00	1130 .....Free	1322.....$1.00	1990.....$1.00	2450.....$1.00
82.....$1.00	490.....$3.00	820.....$1.00	1217 .....Free	1350 .....Free	2030.....$1.00	

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DELTA TOOLS

Model	Description	List	Sale
23-700	Wet/Dry Grinder	234	168
23-680	6" Bench Grinder 1/4 HP	86	75
23-880	8" Bench Grinder 1/2 HP	151	115
11-950	8" Drill Press	199	144
31-050	1" Belt sander 2.0 amp	104	78
31-460	4" Belt/Disc Sander	198	135
31-340	1" Belt/8" Disc Sander	288	204
31-080	1" Belt/5" Disc Sander	134	89
40-560	16" 2 speed Scroll Saw	266	178
11-990	12" Bench Drill Press	276	209
11-090	32" Radial Bench Drill Press	399	294
43-355	3/4" Shaper 1-1/2 HP	964	709
43-505	1/2" Bench Router/Shaper	399	275
22-540	**12" Bench Top Planer**	389	
36-220	10" Compound Mitre Saw	350	228
28-180	Bench Band Saw	232	165
28-190	NEW 12" Band Saw	465	375
40-640	20" Bench Scroll Saw	466	305
37-070	NEW 6" v/spd Bench Jointer	330	255
14-650	Hollow Chisel Mortiser	361	289
46-700	12" Wood Lathe	548	435
34-761	10" Unisaw 1-1/2 HP	1715	1345
33-990	10" Radial Arm Saw	818	615
37-280	6" Motorized Jointer	488	389
37-154	DJ15 6"Jointer w/3/4HPmotor	1420	1089
50-179	3/4 HP 2 stage Dust Collector	483	335
70-200	20" Floor Drill Press	1049	810
33-055	8-1/4" Sawbuck comp w/legs	865	595
34-330	8-1/4" Table Saw 13A	343	234
32-100	Station Plate Jointer	645	259
36-040	8-1/4" Compound Mitre Saw	224	159
34-915	30" Unifence	385	228
34-897	50" Delta Unifence	525	285
36-755	10" Tilt Arbor Saw	1264	935
34-444	Contractors Table Saw	812	615
17-900	16-1/2" Floor Drill Press	441	389
40-601	18" Scroll Saw with stand	942	745
22-661	13" Planer with 2HP motor	1436	1175
	Planer has **$75.00 rebate**-price is before rebate		
33-060	NEW "Sidekick" Miter Saw	499	365
14-070	NEW 14" Floor Drill Press	450	345
50-075	Dust Collector/Sweeper 3/4 HP	360	245

The following Delta tools have a $50.00 rebate! Price shown is before rebate.

28-283	14" Band Saw w/enc. stand	910	735
34-445	34-444 Saw w/30" Unifence	1200	815
34-445B	34-444 w/Bies. 50" saw fence	1300	995

MILWAUKEE TOOLS

6527	NEW Sawzall with case	309	164
6528	above Sawzall w/wired cord	305	168
6125	NEW 5"Random Orbit Sander	200	119
6126	NEW 6"Random Orbit Sander	205	125
0399-1	12V cordless Drill Kit comp	309	165
0402-1	**above Drill w/kyls chuck & 2 batt**		168
0395-1	9.6V cordless Drill with case	284	158
0224-1	3/8" Drill 4.5 amp magnum	215	116
0234-1	1/2" Drill 4.5A mag 0-850 rpm	229	122
0244-1	1/2" Drill 4.5A mag 0-600 rpm	229	123
0222-1	3/8" Drill 3.5 amp 0-1000 rpm	189	107
0228-1	3/8" Drill 3.5 amp 0-1000 rpm	186	104
0375-1	3/8" close quarter Drill	229	128
0379-1	1/2" close quarter Drill	260	145
6546-1	cdls Scrwdvr 200 & 400 rpm	138	82
5399	1/2" D-hdle Hammer Drill Kit	325	188
6750-1	Drywall Gun 0-4000 5 amp	166	95
6507	Original SawZall with case	259	139
6014	Orbital Sander 1/2 sheet	214	124
8977	variable temp. Heat Gun	128	75
5397-1	3.8" var. spd Hammer Drill Kit	250	138
5371-1	1/2" var. spd Hammer Drill Kit	375	185
3107-1	1/2" v/spd right angle Drill Kit	385	209
6754-1	Drywall Gun 0-4000 5.4 amp	192	108
3300-1	1/2" var. spd right angle Drill	339	189
5680	Router 2 HP - 12 amp	355	198
0235-1	1/2" Drill w/keyless chuck	229	128
6145	4-1/2" Grinder 10,000 rpm	165	99
6142	6145 with case & accessories	204	124
6749-1	Drywall Gun 0-2500 5.4 amp	214	124
6365	7-1/4" Circular Saw 13 amp	214	122
6366	6365 w/fence & carbide blade	224	127
6368	6365 w/fnce,carb. blde,& cse	244	139
6377	7-1/4" Worm Drive Saw	324	182
6256	Top Handle Jig Saw	259	139
6490	10" Mitre Saw	444	265

FREUD CARBIDE TIPPED SAW BLADES
5/8" Bore - Industrial Grade

Item	Description	Teeth	List	Sale
LU72M010	Gen Pur. A.T.B.	10" 40	69	39
LU82M010	Cut-off 10"	60	93	49
LU84M011	Comb 10"	50	78	42
LU85M010	Super Cut-off	10" 80	115	59
LM72M010	Ripping 10"	24	69	39
LU73M010	Cut off 10"	60	84	45
LU87M010	Thin Kerf 10"	24	72	39
LU88M010	Thin Kerf 10"	60	88	48
LU98M010	Ultimate 10"	80	128	68
LU91M010	Compnd Mitre 10"	60	88	54
TK303	7-1/4" Finishing	40	38	23
TK305	10" Finishing	40	47	28
TK906	10" Combo	50	53	30
SD306	6" Dado - Carbide		215	112
SD308	8" Dado - Carbide		230	119
F0	1-3/4" x 5/8" Biscuit 1000 Qty		43	29
F10	2-1/8" x 3/4" Biscuit 1000 Qty		43	29
F20	2-3/4" x 1" Biscuit 1000 Qty		45	29
FA	Assorted Biscuits 1000 Qty		45	29
FB100	16 piece Forstner Bit Set		338	184
94-100	5 pc. Router Bit Door System		320	163

The following FREUD Tools have a $30.00 rebate! Price shown is before rebate - Expires 1/15/94

FT2000E	3-1/4 HP v/spd Plunge Router	410	198
JS100	Biscuit Jointer with case	334	159

MAKITA TOOLS

Model	Description	List	Sale
6070DW	3/8" v/spd Reverse Drill 7.2V	128	74
6071DWK	above Drill w/removable batt.	215	110
5090DW	3-3/8" Saw Kit 9.6 volt	270	149
6010SDW	3/8" cordless Drill Kit 7.2V	99	59
ML900	Incandescent Flashlight 9.6V	Sale	37
6012HDWE	2 speed Drill Kit w/2 batt.	255	129
6093DW	v/spd Drill w/clutch-complete.	283	139
6093DWE	6093DW Drill Kit w/2 batteries	296	145
6095DW	6093DW Kit w/keyless chuck	291	135
6095DWE	**6095DW Drill Kit w/2 batteries**		139
6201DWE	NEW 9.6V Drill Kit w/2 batt.	310	155
6211DWE	12V Drill Kit with 2 batteries	342	168
632007-4	9.6 volt Battery	48	30
632002-4	7.2 volt Battery	40	28
5007NBA	7-1/4" Saw w/electric brake	263	129
5008NBA	8-1/4" Saw w/electric brake	316	188
B04510	1/4 sheet Pad Sander	106	54
9900B	3" x 21" Belt Sander w/bag	297	172
9924DB	3" x 24" Belt Sander w/bag	329	159
4301BV	Orb. var. spd Jig Saw 3.5A	292	159
JR3000V	var. speed Recip Saw w/case	252	135
LS1020	10" Mitre Saw 3.5 amp	630	339
9820-2	Blade Sharpener	394	195
N1900B	3-3/4" Planer with case	232	129
1911B	4-3/8" Planer 7.5 amp	309	139
9514B	4" Disc Grinder 4.6 amp	111	65
3601B	1-3/8 HP Router	286	158
B04550	1/4 sheet Pad Sander w/bag	98	54
DA3000R	3/8" Angle Drill	314	155
2708W	8-1/4" Table Saw	585	289
2711	10" Table Saw with brake	1067	558
6404	3/8" Drill Rev. 0-2100 rpm 2 A	112	59
6510LVR	3/8" Drill Rev. 0-1050 rpm	168	88
6820V	0-4000 rpm Drywall Gun 5.2 A	171	92
6013BR	1/2" Drill Rev. 6 amp	280	138
5402A	16" Circular Saw 12 amp	743	395
3612BRA	3 HP Plunge Router w/brake.	383	179
9401	4" x 24" Belt Sander w/bag	378	205
4302C	var. speed Orbital Jig Saw	351	189
5077B	7-1/4" Hypoid Saw	281	138
LS1030	NEW 10" Mitre Saw	428	209
5007NB	7-1/4" Circular Saw 13 amp	232	115
2012	12" Portable Planer	959	495
LS1011	10" Slide Compound Saw	946	498

SIOUX TOOLS

8030	New 3/8" var/spd Drill	238	139
8000	3/8" var/spd close qtr Drill	201	123
690	5" Air Random Orbit Sander	139	132
690VV	690 w/venturi dust collection	281	175
658	5" Air Rndm Sander-dual action	261	155

SENCO AIR NAILERS

SFN1	Finishing Nailer 1" - 2"	377	269
SFN2	Finish. Nailer 1-1/2" - 2-1/2"	571	375
SN325	Nailer 1-7/8" - 3-1/4"	665	425
SLP20	New Pinner w/cse 5/8" - 1-5/8"399		269
SKS	Stapler 5/8" - 1-1/2"	351	245
SN70	NEW HD Framer 2" - 3-1/2"	625	475

BOSTITCH AIR NAILERS

N80S-1	Stick Nailer Super Sale		348
N12B-1	Coil Roofing Nailer	845	405
N60FN-2	Finishing Nailer	625	335
T31	Brad Nailer	270	145
CWC100	1 HP Pancake Compressor	445	289

EXCALIBUR Fences & Tables

TT45R24L9	24" Fence	369	310
TT45R50L12	50" Fence	399	318
EXSLT30	Sliding Table	599	489
EXSLT60	Sliding Table	745	599

SKIL SIZZLERS

77	7-1/4" Worm Drive Saw	257	144
2735-04	12 volt cordless Drill Kit	249	132
2736-04	2735-04 with keyless chuck	269	135
1605-02	NEW Biscuit Jointer w/case	221	129
3400	10" Table Saw - Bench Top	270	179
3330	16" Scroll Saw - Bench Top	205	135

PANASONIC CORDLESS

EY6205BC	NEW variable speed 12 volt Drill w/15 minute charger & case	353	179
EY6205EQK	Same as EY6205BC but battery has 40% more life & 20% more torque	368	189
EY6282EQK	Var. spd 9.6V Drill w/15 min. charger, case & NEW Ironman batt.	315	168
EY62821DKW	9.6 volt Drill Kit w/2 batt.	275	158
EY6181CRKW	**NEW 9.6V PREDATOR Compact Drill Kit with 2 batteries - 10% more power than EY62821DKW**		158
EY6207BC	NEW 12 volt 1/2" Drill w/keyless chuck var. speed w/15 minute charger & case.	420	222

PASLODE IMPULSE GUNS

IM250	Trimpulse Finish Nailer Kit	849	615
IM325	Impulse Framing Nailer Kit	849	595

HITACHI TOOLS

M12V	NEW 3 HP var. speed Router	477	229
TR12	Plunge Router 3 HP	355	174
F1000A	12" Planer/6" Jointer	2774	1549
C10FA	10" Deluxe Mitre Saw	553	299
C12FA	NEW 12" Mitre Saw	600	315
C8FB	8-1/2" Slide Compound Saw	1026	599
FREUD LU91M008	8-1/2" Carb bld 48 t	68	43

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List 135 Sale 76

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SD506
6" carbide w/case & shims
List 292 Sale 165

SD508
8" carbide w/case & shims
List 344 Sale 194

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DEWALT TOOLS

DW3647	7-1/4" Circ. Saw w/brake 13 A	275	145
DW945K-2	3/8" 12V cdls Drill Kit w/2 batt	298	169
DW944K-2	3/8" 9.6V cdls Drill Kit w/2 batt	277	154
DW6101-1/2	HP 2 handle Router	270	148
DW411	1/4 sheet Palm Sander, 1.7 amp	97	58
DW100	3/8" Drill, 4 amp,0-2500 rpm,rev.	116	68
DW510K	1/2" v/spd Hammer Drill w/case	298	165
DW682K	NEW Biscuit Joiner with case	428	225
DW705	12" Compound Mitre Saw	658	358
DW615	NEW 1-1/4 HP Elect. Pige Router	290	158
DW625	**NEW 3 HP var. spd Plunge Router**		269
DW675K	NEW 3-1/2 HP Planer with case	280	159
DW431	NEW 3 x 21 v/spd Belt Sander	320	182

PORTA NAILER

401	Porta Nailer complete	265	198
501	Face Nailer complete	265	195

WERNER LADDERS

6204	4' Fiberglass	179	65
6205	5' Fiberglass	199	75
6206	6' Fiberglass	225	80

WINTER KIT SPECIALS

9852K	Porter Cable 9852 Drill Kit w/extra batt	185	
9853K	Porter Cable 9853 Drill Kit w/extra batt	185	
7335K	Porter Cable 5" var. spd Random Orbit Sndr w/cse & 1 roll 100X & 150X discs	273	169
7336K	Porter Cable 6" var. spd Random Orbit Sndr w/cse & 1 roll 100X & 150X discs	278	175
555K	Porter Cable Plate Biscuit Jointer with case & 1000 assorted biscuits	339	195
JS100K	Ryobi Jointer w/cs & 1000 bisc	351	185
1581VSK	Bosch Top Handle Jig Saw with case & 30 Bosch blades	305	175
1582VSK	Bosch CLIC Barrell Grip Jig Saw with case & 30 Bosch blades	305	175
JM100KK	Ryobi Joiner w/1000 biscuits	475	242

BIESEMEYER FENCES

B-50	50" Commer. Saw Fence	345	298
T-SQUARE 52	52" Homeshop Fence	279	238
T-SQUARE 40	40" Homeshop Fence	259	208
T-SQUARE 28	28" Homeshop Fence	249	198

WEDGE SMART LEVEL

SM-PR2	2 FT Level with sensor	120	88
SM-PR4	4 FT Level with sensor	150	105
SM-PR6	78" Level with sensor	160	139
SL224	NEW 2FT Level with sensor	79	55

Msx636 FEIN	Triangle Sander Kit	Sale	185
LPN672 PONY	Air Palm Nailer w/glove	Sale	94.99

JORGENSEN ADJUSTABLE HANDSCREWS

Item#	Length	Jaw Cap	Open	List	Sale	Box of 6
#0	8"	4-1/2"		19.00	11.89	61.00
#1	10"	6"		21.76	12.89	70.65
#2	12"	8-1/2"		24.95	14.95	80.95
#3	14"	10"		31.61	18.95	104.95
#4	16"	12"		42.30	24.95	143.95

JORGENSEN STYLE 37 2-1/2" Throat 1/4"x3/4"

Item#	Jaw Length	List	Sale	Box of 6
3706	6"	9.86	6.25	34.75
3712	12"	10.92	6.75	37.75
3718	18"	12.05	7.25	40.75
3724	24"	13.16	8.19	43.75
3730	30"	14.70	9.10	49.75
3736	36"	16.05	10.19	55.75

PONY CLAMP FIXTURES

Model		List	Sale	Lots of 12
50	3/4" Black Pipe Clamps	13.61	7.89	84.99
52	1/2" Black Pipe Clamps	11.37	6.50	69.50

BOSCH

1581VS	Top Handle Jig Saw	275	138
1582VSC	NEW CLIC Barrell Jig Saw	275	138
	Bosch Metal Case for above Jig Saws	34	32
	Bosch 30 blade assortment for Jig Saws	27.99	
1942	Heat Gun 600° - 900°	115	74
1272D	3" x 24" Belt Sander with bag.	340	185
1273D	4" x 24" Belt Sander with bag.	359	195
11-212VSR	Bulldog 3/4" SDS Rtry Drill	370	198
1347AK	4-1/2" Grinder w/case & access.	175	108
1348AE	5" Grinder 8.5 amp	209	118
1194VSR	1/2" var. speed Hammer Drill	259	145
1194VSRK	above Hammer Drill w/case.	287	169
1608	5.6 amp Laminate Trimmer	154	88
1609K	Lam Installers Kit with 1609	315	175
1609KX	Deluxe Installers kit	369	209
1604A	1-3/4 HP 2 Handle Router	249	137
1604AK	same as above w/case & acc.	299	169
1606A	1-3/4 HP D-handle Router	273	168
3258	3-1/4" Planer w/blade guard	247	139
3258K	3258 Planer with steel case	273	154
3270D	3" x 21" Belt Sander with bag.	270	148
1273DVS	var. spd 4" x 24" Belt Sander	380	198
1614	NEW 1HP Plunge Router	225	128
1614EVS	NEW 1-1/4HP v/spd Plge Rtr.	260	149
1613	NEW 1-3/4 HP Plunge Router	290	164
1613EVS	**NEW 2HP v/sp Plunge Router**		178
1615	NEW 3 HP. Plunge Router	395	228
1615EVS	NEW 3 HP v/spd Plge Router	460	244
1632VSR	K Recip Saw 8.4A orb-v/spd	225	145
3050VSR	K 9.6V cdls v/sp Drill Kit comp	256	138
3051VSR	K 3050VSRK w/keyless chuck	266	145
1370DEVS	6" Random Orbit Sander	391	219
3283DVS	5" Random Orbit Sander	169	95
3283DVSK	3283DVS Kit complete	199	119

ELU BY BLACK & DECKER

Model	Description	List	Sale
3338	2-1/4 HP v/spd Plunge Router	448	255
3375	3-1/8" Univ. planer 7.2 amp	329	155
3380	Biscuit jointer with case	569	248
3339	NEW 3 HP v/sp Plunge Router	500	275

BLACK & DECKER

1166	3/8" Drill 0-2500 rpm 4 amp	105	65
1703-1	10" Mitre Saw w/73-770 blde.	329	185
4011	1/4 sheet Palm Sander	86	59
79-034	Workmate 400	177	109
2694	7-1/4" Super Saw cal	275	144
2695	8-1/4" Super Saw cal	308	158

DAVID WHITE

LP6-20	Sight Level package - 20x	310	198
L6-20	Meridian Level - 20x	290	189
LT8-300	Level Transit - 26x	650	449
LT8-300P	above Level w/optical plum	769	534
LT6-900	Level Transit - 20x	389	254
ALT6-900	Automatic Level - Transit - 18x	549	389
ALTP6-900	above Level w/tripod & rod	600	475
ALP6-18HD	above Level w/tripod & rod	550	375

RYOBI SPECIALS

JP-155	6-1/8" Jointer/Planer	648	305
TS-254	10" Mitre Saw	420	209
RE600	3 HP Plunge Router	465	215
BE321	3" x 21" var. spd Belt Sander	290	138
TFD222VRK	12V cordless Drill Kit	325	172
JM100K	Biscuit Jointer w/case	453	215
BT3000	10" Table Saw	1204	539
TSS220	8-1/2" Slide Comp. Saw	966	445
DS1000	NEW Detail Sander	90	44
RS112	Palm grip Rndm Orb Sndr	90	55
AP12	NEW 12" Bench Planer	884	410
RA202	NEW 8-1/4" Bench Radial Saw	695	395
BS900	NEW 9" Bench Band Saw	298	175
IDV26	NEW 28 Gal. Industrial Dry Vac	198	119
OSS450	NEW Oscilating Spindle Sander	298	175

LAMELLO BISCUIT JOINTERS

TOP 10	"Simply the Best"	699	545
STANDARD 10	"Professionals Choice"	499	399
COBRA	NEW Biscuit Joiner	Special	299

QUAL-CRAFT PRODUCTS

2200	Pump Jack	79	55
2201	Pump Jack Brace	30	19
2203	Pump Jack guard rail holder	31	21
2204	Workbench & rail holder combo	53	39
	Buy any 6 (can be assort.) deduct 10%		
2601	Wall Jack	167	105
	Lots of 4 deduct additional 10%		

PORTER CABLE

690	1-1/2 HP Router 8 amp	255	138
9690	690 Router with steel case	305	148
691	1-1/2 HP Router D-handle	280	149
695	1-1/2 HP Router/Shaper	390	215
696	HD Shaper Table	225	129
351	3" x 21" Belt Sander w/o bag	270	140
352	3" x 21" Belt Sander with bag	280	154
360	3" x 24" Belt Sander with bag	350	194
361	3" x 24" Belt Sander w/o bag	330	184
362	4" x 24" Belt Sander with bag	365	198
363	4" x 24" Belt Sander w/o bag	345	188
315-1	7-1/4" Top Hdle Circular Saw	220	122
9315-1	315-1 comp. w/cs & carb bld	250	139
617	7-1/4" Pushhandle Saw	220	119
9617	617 comp. w/cse & carb blde	250	142
97751	1/2" v/spd Hammer Drill w/cse	265	155
9118	Porta Plane Kit 7 amp	380	209
505	1/2 sheet Pad Sander	225	118
6611	3/8" var. speed Drill 5.2 amp	210	118
6614	1/2" var. speed Drill 0-750 rpm	220	122
6615	7514 with keyless chuck	220	122
7549	Top handle Jig Saw 4.8 amp	260	145
330	Speed Block Sander 1/4 sheet	105	62
555	Plate Biscuit Jointer with case	320	168
556	**555 Joiner w/5556 tilt fence**		175
345	6" Saw Boss 9 amp	190	104
9345	345 comp. w/cse & carb blde	220	124
9647	TIGER CUB Recip. Saw	205	117
9637	Full var/spd Recip Saw 8 amp	265	145
7519	3-1/4 HP Router 2 Handle	430	229
7518	3-1/4 HP 5 speed Router	495	264
7538	3-1/4 HP Plunge Router	430	234
7399	5.6 amp Drywall Cutout Unit	140	89
7310	5.6 amp Laminate Trimmer	160	92
97310	Laminate Trimmer Kit comp	355	195
7334	5" Random Orbit Sander	221	119
7335	5" var. spd Rndm Orbit Sndr	241	129
7336	6" var. spd Rndm Orbit Sndr	246	137
73333	Dust Collection system	31	24.50
693	1-1/2 HP Plunge Router Base	315	169
6931	Plunge Router Base	125	77
7539	3-1/4HP var/spd Plunge Router	495	268
9852	12V 3/8"Drill w/cse 0-1000rpm	280	149
9853	9852 with keyless chuck	280	155
9855	12V 1/2" 2 spd, v/spd Drill w/cse	335	184
8500	12V battery for above drills	Sale	39
	New Tools by Porter Cable		
9841	9.6V Drill Kit-15 min. charger	309	168
9840	9.6V Drill Kit with 2 batteries	289	158
332	Palm Grip Rndm Orbit Sander	116	64
333	above Sander with dust bag	131	68
334	333 Sander with PSA pad	131	74
352VS	3x21 Belt Sander w/bag v/spd	295	159
7116	24" Omni Jig	530	294
550	Pocket cutter with case	330	178
310	Production Laminate Trimmer	250	145
7700	10" "Lazerloc" Mitre Saw	634	399

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Print this article

WANTED:
WOODWORKERS TO MAKE A DIFFERENCE

Ross Hart's daughter, Allyson, makes daily use of the painted plywood wheelchair tray her daddy made for her.

At *WOOD*® magazine we often hear how readers help others. But Ross Hart, a reader who lives in Roanoke, Virginia, really opened our editorial eyes with his letter.

He wrote, in part: "Allyson, my 5-year old daughter, suffers from a neurological disorder, is confined to a wheelchair, and needs special devices prescribed by her physician or physical therapist. Through this, I have learned of a great need for the skills that subscribers could provide for those who don't have woodworking skills or shop access and can't afford manufactured offerings.

"A lot of handicapped kids need special devices that are usually made from wood: standing tables to help them stand without falling, corner sitters to help with positioning, floorsitters that let the kids watch TV or play, even simple trays. Such devices normally aren't covered by insurance or Medicaid. I have made some of these in my shop, and have designed a few that are unique to my daughter's needs [see photo *above*]. An article relating these needs would be a tremendous public service. Every woodworker I have met would leap at an opportunity to help others once they knew the need. Your 'Make a Difference' spot in Finishing Touches proves that."

Ross went on to suggest that woodworkers contact their local university hospital, Easter Seal Society, or a physical therapist to find examples of what's needed. We did. And drawings of the simple devices shown *left* are just two examples that would be easy to duplicate in a home shop.

According to Ross, because these devices are built to individual needs, they're much like jigs, and all woodworkers love to build jigs. Many thanks, Ross, for sharing a great giving idea.

A commercially made vestibular board, like the one, *above*, sells for $100. Retail cost for the standing box, *left*, is $350.

WOOD WINS OUT

Recent microbiological research at the University of Wisconsin strongly suggests that you can now toss out any plastic cutting boards you might have around. That's because tests there have shown that wooden cutting boards naturally do away with the bacteria of common food-poisoning agents, such as salmonella.

Although researchers can't yet fully explain how wood does it, cutting boards tested eliminated 99.9 percent of all bacteria placed on them within three minutes! Under similar conditions, all bacteria that was placed on knife-scored plastic survived. However, wooden cutting boards treated with an oil finish acted very similar to plastic ones by upping the bacteria's survival rate over unfinished cutting boards.

BUILD 'A-TOY

CRAFT A TOY FOR JOY

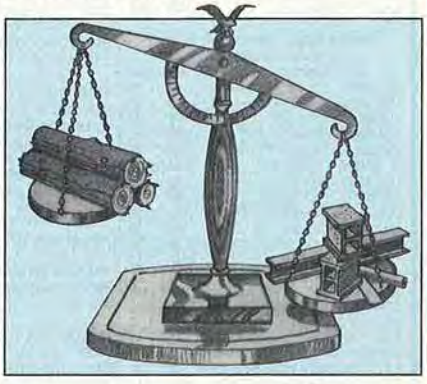
There's still plenty of time to enter *WOOD* magazine's annual toy contest to benefit Toys for Tots. Deadline is February 1. See the notice on *page 86.*

THE GIANT OF GIANTS

The National Register of Big Trees currently lists a 363'-tall coastal redwood, in California, as the nation's tallest tree. But what may have been the world's tallest tree no longer stands. It was a 417' Douglas fir that was felled in Vancouver, B.C., by loggers in 1902. That giant had a trunk circumference of 45'!

WHAT WOULD WE DO WITHOUT WOOD?

According to Dr. James L. Bowyer, a professor of forestry at the University of Minnesota, wood accounts for 47 percent of all materials—plastic, Portland cement, everything—used in the U.S. each year, on a weight basis. But unlike other materials, wood comes from trees, which are a renewable resource.



Photograph: Ross Hart Illustrations: Jim Stevenson

QUICK-CHANGE ARTISTS.

We believe that every hour spent in the shop is precious time.

That cutting a perfect curve on a quality saw should be part of the pleasure.

And that blade changes are a rude interruption of enjoyment and productivity.

We kept little things like blade changes in mind when we designed these saws to make sure they spend more time working than being worked *on*.

We figure that every quality feature we build into every tool we make will show up on the work that comes out of your shop.

You'll find Delta quality shop tools at your local Delta machinery dealer or at leading home center and hardware stores.

Call toll free and we'll give you the details on the store nearest you.

Delta International Machinery Corp., 800-438-2486. In Canada, call: 519-836-2840.

The Delta Bench Band Saw. Two-wheel design minimizes blade flexing and reduces blade breakage due to metal fatigue. Hinged wheel cover for fast, easy blade changes. Provides 7 ½" blade to frame capacity, a full 5" under guide. Large 11 ⅜" × 11 ⅜" tilting table.

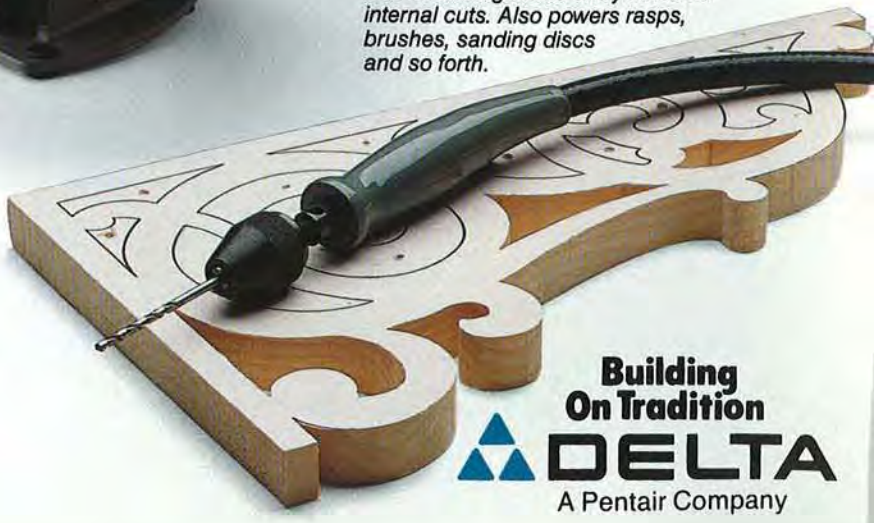
Exclusive Quickset™ Blade Tensioning System takes the guesswork out of adjustment and tensioning for different width blades. Proper tension means longer blade life, less down time.

Our 16" 2-speed Scroll Saw cuts an inside curve like a sports car at speeds of 850 and 1,725 cut strokes/minute. Deep 16" throat handles large work. Cuts stock up to 2" thick. Features cast-iron frame and tilting table.

We're pleased to be underwriters of The New Yankee Workshop and The American Woodshop on public television.

It's a snap. Quickset™ Blade Changing System features instant-acting, tension-release lever with patented pivoting chucks and wrench.

Scroll Saw has unique power take-off for mounting accessory flex shaft that powers bits for drilling blade-entry holes for internal cuts. Also powers rasps, brushes, sanding discs and so forth.

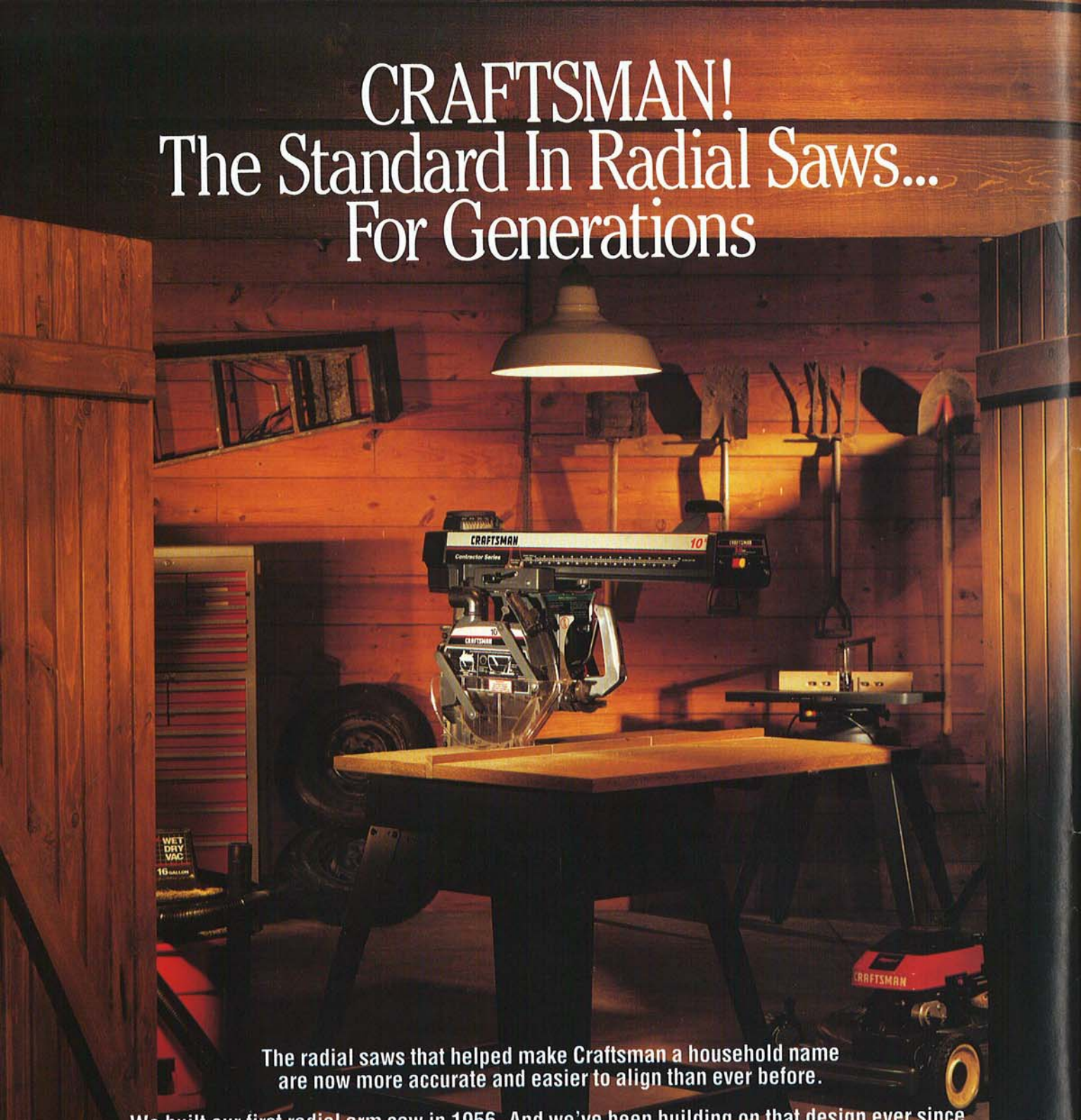


Building On Tradition

DELTA

A Pentair Company

CRAFTSMAN! The Standard In Radial Saws... For Generations



The radial saws that helped make Craftsman a household name are now more accurate and easier to align than ever before.

We built our first radial arm saw in 1956. And we've been building on that design ever since. Our newest radials incorporate improvements such as our revolutionary new blade guard that will make Craftsman an industry leader for generations to come.

You can crosscut, rip, miter, or bevel cut, and with easy to install accessories, you can create dados and decorative molding, route, drill, sand or plane. No other tool lets you accomplish so much with such ease or accuracy.

The new Craftsman radials are on display at your nearby Sears store.

CRAFTSMAN®

Only at Sears